DECIMALS - DOLLARS AND CENTS

10 x 10

Planning for Start-Up in the New Grade 4 Math Provincial Session 1 (Sept/Oct)

Unit Fractions

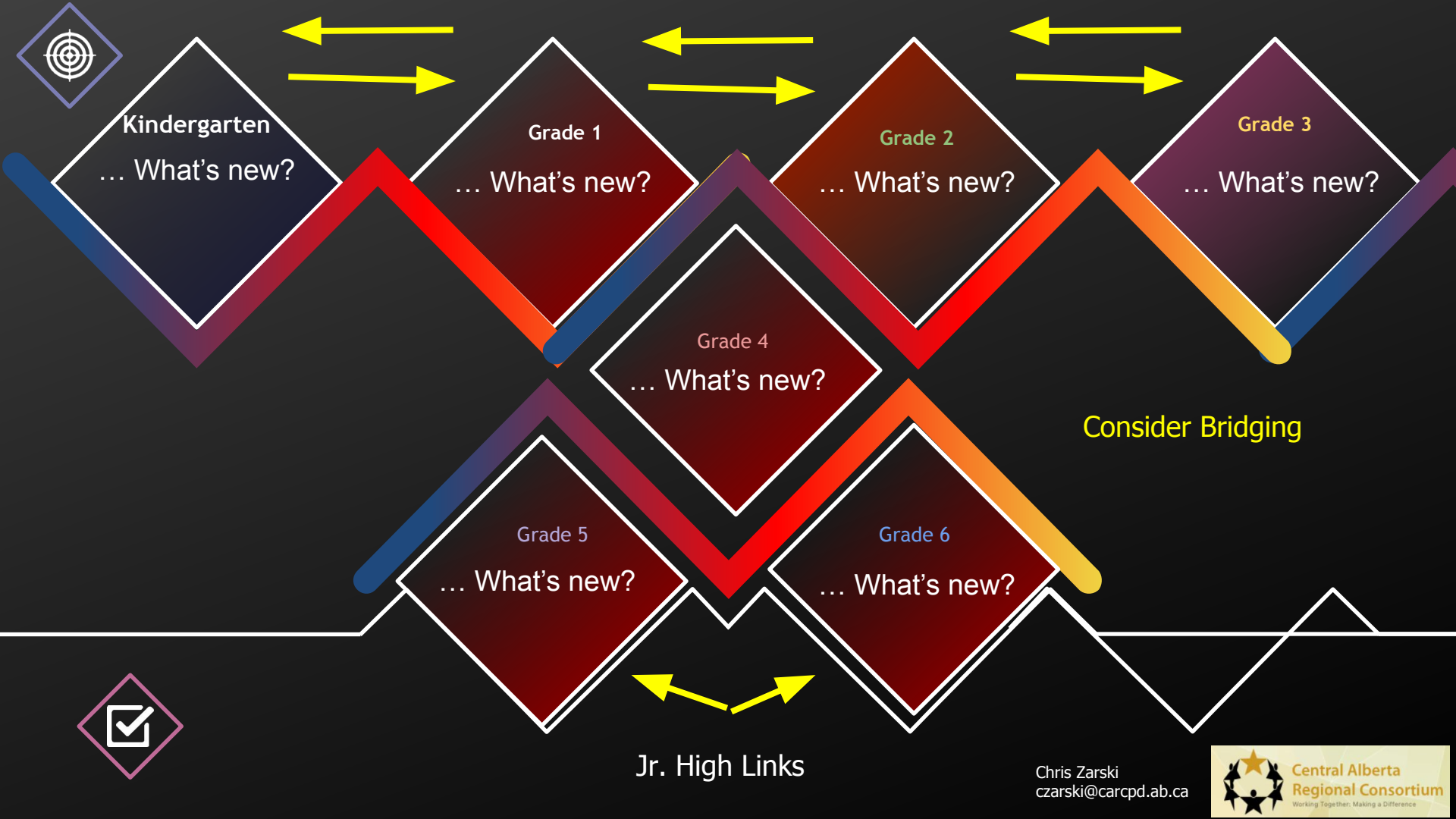
10 000

12 x 12

Land Acknowledgment

We respectfully acknowledges that we are situated on Traditional lands across the province of Alberta home to many First Nations, including the Cree, Blackfoot, Métis, Nakota Sioux, Saulteaux, Inuit, and many others whose histories, languages, and cultures continue to influence our vibrant community.

Teaching Mathematics in Relationship with Indigenous Ways of Knowing



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Central Alberta Regional Consortium
Working Together, Making a Difference

Organizing Ideas

Organizing Ideas	K	1	2	3	4	5	6
Number							
Algebra							
Geometry							
Coordinate Geometry							
Measurement							
Patterns							
Time							
Statistics							

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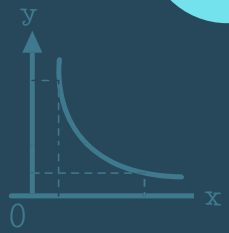


Grade 4 Document Overview

Architecture and Design of Provincial K–12 Curriculum

Organizing Idea

Guiding Question

Learning Outcome

Knowledge, Understanding, Skills and Procedures

Literacy, Numeracy, and Competencies

Alberta

Document Overview

Numbered Outcomes including Financial Literacy Outcomes

Language Conventions

Language Convention	Interpretation for Implementation	Example from Curriculum
including/include(s)	A list following "including" or "include(s)" contains **required** knowledge. Students must know all elements of the list in order to achieve the learning outcome.	Subtraction can be applied in various contexts, **including** • comparing two quantities • taking away one quantity from another • finding a part of a whole
such as	A list following "such as" provides a list of **illustrative examples** that support the learning outcome. Teachers may use any of these examples, or they may choose others.	Right angles can be identified using various referents, **such as** • the corner of a piece of paper • the angle between the hands on an analog clock at 3:00 • a capital letter L
content in parentheses	Words in parentheses are **subject-specific terms** for teachers and parents. These words follow the associated age-appropriate terms for students.	A shape can change orientation or position through slides **(translations)**, turns **(rotations)**, or flips **(reflections)**.

Verbs Are Defined by Context

Kindergarten: Number	Grade 1: Geometry	Grade 3: Number
LO: Children **interpret** compositions of quantities within 10.	**LO:** Students **interpret** shape in two and three dimensions.	**LO:** Students **interpret** fractions in relation to one whole.
Verbs from Associated Skills and Procedures	Verbs from Associated Skills and Procedures	Verbs from Associated Skills and Procedures
Identify **Compose** **Recognize**	**Identify** **Model** **Sort** **Compose** **Decompose** **Investigate**	**Model** **Visualize** **Identify** **Name** **Express** **Compare**

Document Overview

Curriculum Comparison Document

Year At A Glance

Sample Year at a Glance: Mathematics - Grade 4

September 2023 ---------- **November 2023**

September	October	November

Number: Quantity is measured with numbers that enable counting, labelling, comparing and operating.

September

4N1 Students apply place value to decimal numbers (within 00)

- Decimal numbers are numbers between natural numbers
- Decimal numbers are fractions with denominators of 10, 100, etc. (introduce with basic money skills/fractions initially - unit fractions of denominator 10 & 100, number lines)
- The separation between wholes and parts, including dollars and cents, can be represented using decimal notation.(introduce with basic money skills/fractions initially)
- Patterns in place value are used to read and write numbers, including wholes and parts.(relate to money initially)

4N2 Students add and subtract within 10 000, including decimal numbers to hundredths.

- Standard algorithms for addition and subtraction may be used for any decimal numbers (initially whole numbers to 1000)

4N4 Students multiply and divide natural numbers within 10 000.(ongoing review of facts to 100 10x10)

- Multiplication and division strategies can be chosen based on the nature of the numbers

4N5.1 Students apply equivalence to the interpretation of fractions

- There are infinitely many equivalent fractions that

October

4N1 Students apply place value to decimal numbers (within 100)

- Decimal numbers are numbers between natural numbers
- Decimal numbers are fractions with denominators of 10, 100, etc.
- The separation between wholes and parts, including dollars and cents, can be represented using decimal notation.
- Patterns in place value are used to read and write numbers, including wholes and parts.(relate to money)

4N2 Students add and subtract within 10 000, including decimal numbers to hundredths.

- Standard algorithms for addition and subtraction may be used for any decimal numbers (whole numbers to 1000 - 5000, dollar amounts < $100)

4N4 Students multiply and divide natural numbers within 10 000.(facts 12 x 12)

- Multiplication and division strategies can be chosen based on the nature of the numbers *this should be ongoing throughout the year

4N3 Students explain properties of prime and composite numbers using multiplication and division

- Different factors can compose the same product.
- Different products can share factors.
- A number divided by one of its factors will result in

November

4N2 Students add and subtract within 10 000, including decimal numbers to hundredths.

- Standard algorithms for addition and subtraction may be used for any decimal numbers (move towards 10 000)

4N3 Students explain properties of prime and composite numbers using multiplication and division

- Different factors can compose the same product.
- Different products can share factors.
- A number divided by one of its factors will result in a remainder of 0.

4N4 Students multiply and divide natural numbers within 10 000.(facts 12 x 12)

- Multiplication and division strategies can be chosen based on the nature of the numbers *this should be ongoing throughout the year

Sample Year at a Glance: Mathematics - Grade 4

September 2023 ---------- November 2023

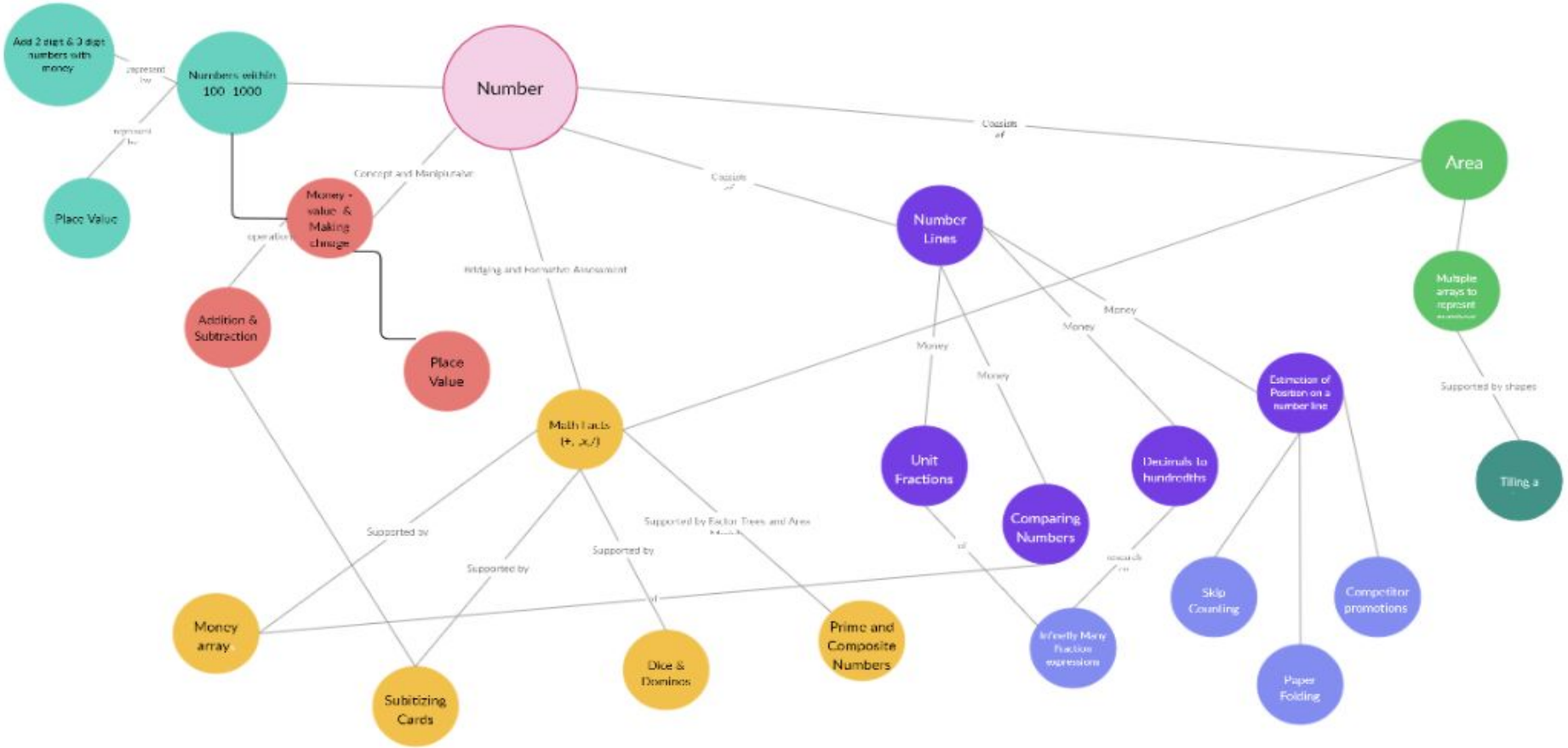
September	October	November
represent the same number. (limit to money with dimes and pennies initially - review of unit fractions with these values • Exactly one of infinitely many equivalent fractions is in simplest form. (initially limit to money with pennies and dimes - review of unit fractions with these values •) 4N5.2 Students apply equivalence to the interpretation of fractions. • Decimal numbers that terminate (do not repeat) are fractions with denominators of 10, 100, etc. • Fractions and decimal numbers that represent the same number are associated with the same point on the number line (use this part understanding as your initial conversation)	a remainder of 0. 4N5.2 Students apply equivalence to the interpretation of fractions. • Decimal numbers that terminate (do not repeat) are fractions with denominators of 10, 100, etc. • Fractions and decimal numbers that represent the same number are associated with the same point on the number line	
Measurement: Attributes such as length, area, volume, and angle are quantified by measurement.		
	4M1.1 Students interpret and express area • Area is a measurable attribute that describes the amount of two- dimensional space contained within a region. • Area may be interpreted as the result of motion of a length. • An area remains the same when decomposed or rearranged. (Link to math facts 4N4)	4M1.1 Students interpret and express area • Area is a measurable attribute that describes the amount of two- dimensional space contained within a region. • Area may be interpreted as the result of motion of a length. • An area remains the same when decomposed or rearranged.

ample Year at a Glance: Mathematics - Grade 4

September 2023 ---------- November 2023

September	October	November
	• Area is measured with equal-sized units that themselves have area and do not need to resemble the region being measured. • The area of a rectangle can be perceived as square-shaped units structured in a two-dimensional array.	• Area is measured with equal-sized units that themselves have area and do not need to resemble the region being measured. 4M1.2 Students interpret and express area • Area can be estimated when less accuracy is required
Algebra: Equations express relationships between quantities.		
4A1.1 Students represent and apply equality in multiple ways • There are infinitely many expressions that represent the same number. (start with money) • The order in which operations are performed can affect the value of an expression (leave for Nov)		4A1.1 Students represent and apply equality in multiple ways • There are infinitely many expressions that represent the same number. • The order in which operations are performed can affect the value of an expression
Time: Duration is described and quantified with time.		
4T1 Students communicate duration with standard units of time • Analog clocks can relate duration to a circle. Ongoing - use for number (skip counting, link to unit fractions, link to angles, fractions, conversions; ensure that students have reviewed the unit fraction of time	4T1 Students communicate duration with standard units of time • Analog clocks can relate duration to a circle. Ongoing - use for number (skip counting, link to unit fractions, link to angles, fractions, conversions; ensure that students have reviewed the unit fraction of time	4T1 Students communicate duration with standard units of time • Analog clocks can relate duration to a circle. Ongoing - use for number (skip counting, link to unit fractions, link to angles, fractions, conversions; ensure that students have reviewed the unit fraction of time.

Concept Map Sample for Grade 4 September/October



Taking Inventory

September 2023

September	October

Number: Quantity is measured with numbers that enable counting, labelling, comparing and operating.

4N1 Students apply place value to decimal numbers (within 00)

- Decimal numbers are numbers between natural numbers
- Decimal numbers are fractions with denominators of 10, 100, etc. (introduce with basic money skills/fractions initially - unit fractions of denominator 10 & 100, number lines)
- The separation between wholes and parts, including dollars and cents, can be represented using decimal notation.(introduce with basic money skills/fractions initially)
- Patterns in place value are used to read and write numbers, including wholes and parts.(relate to money initially)

4N2 Students add and subtract within 10 000, including decimal numbers to hundredths.

- Standard algorithms for addition and subtraction may be used for any decimal numbers (initially whole numbers to 1000)

4N4 Students multiply and divide natural numbers within 10 000.(ongoing review of facts to 100 10x10)

- Multiplication and division strategies can be chosen based on the nature of the numbers

4N5.1 Students apply equivalence to the interpretation of fractions

- There are infinitely many equivalent fractions that

4N1 Students apply place value to decimal numbers (within 100)

- Decimal numbers are numbers between natural numbers
- Decimal numbers are fractions with denominators of 10, 100, etc.
- The separation between wholes and parts, including dollars and cents, can be represented using decimal notation.
- Patterns in place value are used to read and write numbers, including wholes and parts.(relate to money)

4N2 Students add and subtract within 10 000, including decimal numbers to hundredths.

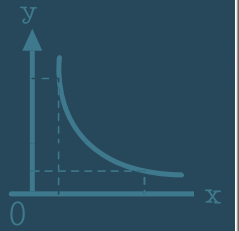
- Standard algorithms for addition and subtraction may be used for any decimal numbers (whole numbers to 1000 - 5000, dollar amounts < $100)

4N4 Students multiply and divide natural numbers within 10 000.(facts 12 x 12)

- Multiplication and division strategies can be chosen based on the nature of the numbers
  *this should be ongoing throughout the year

4N3 Students explain properties of prime and composite numbers using multiplication and division

- Different factors can compose the same product.
- Different products can share factors.
- A number divided by one of its factors will result in



2+2=4

4N1 Understandings

Decimal numbers are **numbers** between natural numbers.

Decimal numbers are **fractions** with **denominators** of 10, 100, etc.

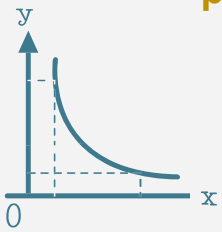
The separation between **wholes** and **parts**, including **dollars** and **cents,** can be represented using **decimal notation**.

Patterns in place value are used to read and write **numbers,** including **wholes** and **parts.**

Address these first through the learning of money.

x

y



How can place value facilitate interpretation of number?

4N1 Students apply place value to decimal numbers.

Knowledge	Understanding	Skills & Procedures
For numbers in base-10, each place has one-tenth the value of the place to its left. Multiplying or dividing a number by 10 corresponds to shifting place value one position to the left or right, respectively. The decimal separator is a point in English and a comma in French. Numbers, including decimal numbers, can be composed in various ways using place value. A zero placed to the right of the last digit in a decimal number does not change the value of the number. The word *and* is used to indicate the decimal point when reading a number.	Decimal numbers are numbers between natural numbers. Decimal numbers are fractions with denominators of 10, 100, etc. The separation between wholes and parts, including dollars and cents, can be represented using decimal notation. Patterns in place value are used to read and write numbers, including wholes and parts.	Identify the place value of each digit in a number, including tenths and hundredths. Relate the values of adjacent places, including tenths and hundredths. Determine the value of each digit in a number, including tenths and hundredths. Express numbers, including decimal numbers, using words and numerals. Express various compositions of a number, including decimal numbers, using place value. Recognize decimal notation expressed in English and in French. Round numbers to various places, including tenths. Compare and order numbers, including decimal numbers. Express the relationship between two numbers, including decimal numbers, using <, >, or =. Express a monetary value in cents as a monetary value in dollars using decimal notation.

4N1 Students apply place value to decimal numbers (within 100)

- Decimal numbers are numbers between natural numbers
- Decimal numbers are fractions with denominators of 10, 100, etc. (introduce with basic money skills/fractions initially - unit fractions of denominator 10 & 100, number lines)
- The separation between wholes and parts, including dollars and cents, can be represented using decimal notation.(introduce with basic money skills/fractions initially)
- Patterns in place value are used to read and write numbers, including wholes and parts.(relate to money initially)

2+2=4

Notes: How do you leverage money?

- Work within 100, leave decimals out initially
- Learn money and values
- Put together 2 digit whole number dollar amounts
- Count out bills to end in a 2-digit whole dollar amount
- Make change to a dollar, $5.00, $10.00, change for $100.00
- Addition and subtraction by counting back change
- Compare money amounts
- Describe a 2 digit/3 digit dollar amount in place value terms
- Practice reading and writing 3 digit numbers - relate to $100/$10/loonies
- Regroup money - use mats *** must be comfortable and fluent in money
- Dice rolling, write largest number and smallest number
- Multiply dice
- Subitizing cards
-

How can understanding of addition and subtraction be extended to decimal numbers?		
4N2 Students add and subtract within 10 000, including decimal numbers to hundredths.		
Knowledge	Understanding	Skills & Procedures
Standard algorithms for addition and subtraction of decimal numbers are conventional procedures based on place value. Estimation can be used to check the reasonableness of a sum or difference.	Standard algorithms for addition and subtraction may be used for any decimal numbers.	Add and subtract numbers, including decimal numbers, using standard algorithms. Assess the reasonableness of a sum or difference using estimation. Solve problems using addition and subtraction, including problems involving money.

Notes:

- Could use dominos turned sideways
- Read and write 3 digit numbers
- Compare numbers
- Can they place numbers between 100 on a number line? Between 0-500? Between 0 - 1000?
- Paper folding to help link unit fractions to the division of larger numbers.

4N2 Students add and subtract within 10 000, including decimal numbers to hundredths.

- Standard algorithms for addition and subtraction may be used for any decimal numbers (initially whole numbers to 1000)

How can multiplication and division characterize the composition of numbers?		
4N3 Students explain properties of prime and composite numbers using multiplication and division.		
Knowledge	Understanding	Skills & Procedures
A factor of a number is a divisor of that number. A number is a multiple of any of its factors. A prime number has factors of only itself and one. A composite number has factors other than one and itself. Zero and one are neither prime nor composite numbers.	Different factors can compose the same product. Different products can share factors. A number divided by one of its factors will result in a remainder of 0.	Determine the factors of a number within 100. Describe a number as prime or composite. Determine the first five multiples of a given number within 100. Recognize the greatest common factor (greatest common divisor) of two numbers within 100.

4N3 Students explain properties of prime and composite numbers using multiplication and division

- Different factors can compose the same product.
- Different products can share factors.
- A number divided by one of its factors will result in a remainder of 0.

Notes:

- Skip counting
- Work on number facts 10x10
- Factor composite numbers within 100 (factor trees)
- Money arrays
- Dice and grid - seeing every multiplication as an area.
-

OCTOBER

How can multiplication and division be interpreted?

4N4 Students multiply and divide natural numbers within 10 000.

Knowledge	Understanding	Skills & Procedures
Recall of multiplication and division number facts facilitates multiplication and division strategies. Standard algorithms facilitate multiplication and division of natural numbers that have multiple digits. Estimation can be used to check the reasonableness of a product or quotient.	Multiplication and division strategies can be chosen based on the nature of the numbers.	Recall and apply multiplication number facts, with factors to 12,and related division number facts. Investigate patterns in multiplication and division of natural numbers by 10, 100, and 1000. Multiply and divide 3-digit natural numbers by 1-digit natural numbers using personal strategies. Examine standard algorithms for multiplication and division. Multiply and divide 3-digit natural numbers by 1-digit natural numbers using standard algorithms. Divide and express a quotient with or without a remainder. Investigate strategies for estimation of products and quotients. Assess the reasonableness of a product or quotient using estimation. Solve problems using multiplication and division.

4N4 Students multiply and divide natural numbers within 10 000.(facts to 100 10x10)

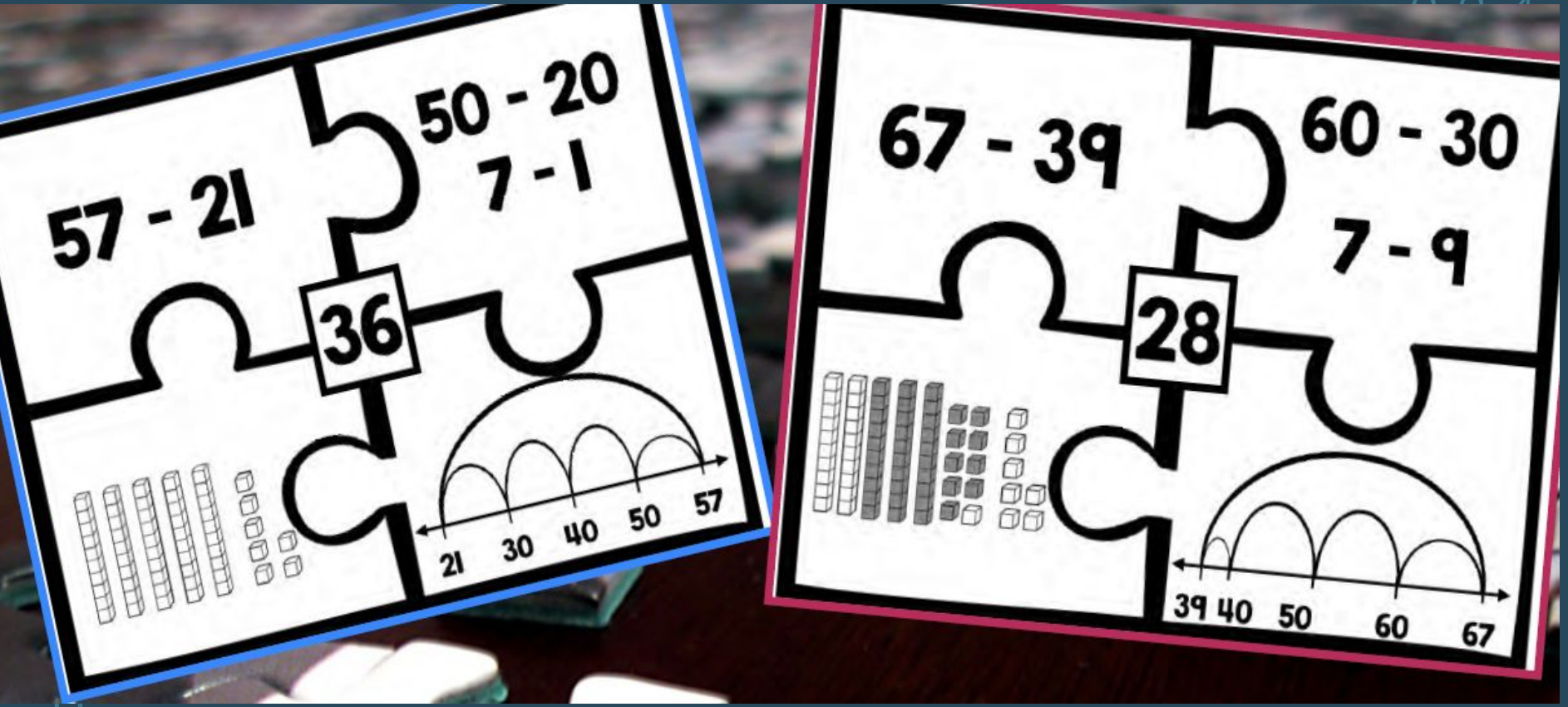
- Multiplication and division strategies can be chosen based on the nature of the numbers

4N5.1 Students apply equivalence to the interpretation of fractions

- There are infinitely many equivalent fractions that

Notes:

- Dice rolling, write largest number and smallest number, Place value coins
- Multiply dice
- Subitizing cards
- Arrays of money
- Multiplication with money amounts
- Closest to 100 grid board



Base ten blocks could be used AFTER money - replace that model with money instead.

How can fractions be characterized in different ways?

4N5.1 Students apply equivalence to the interpretation of fractions.

Knowledge	Understanding	Skills & Procedures
Equivalent fractions are associated with the same point on the number line. Equivalent fractions can be created by partitioning each equal part of a fraction in the same way. Partitioning a fraction can be interpreted as multiplying the numerator and denominator of a fraction by the same number. A fraction can be simplified to an equivalent form by dividing the numerator and denominator by a common factor. The numerator and denominator of a fraction in simplest form have no common factors. Dividing the numerator and denominator of a fraction by their greatest common factor will achieve simplest form.	There are infinitely many equivalent fractions that represent the same number. Exactly one of infinitely many equivalent fractions is in simplest form.	Model equivalent fractions by partitioning a whole in multiple ways. Determine fractions equivalent to a given fraction. Relate the position of equivalent fractions on the number line. Identify fractions in which the numerator and denominator have a common factor. Simplify a given fraction by dividing the numerator and denominator by a common factor. Express a fraction in simplest form. Compare and order fractions.

Notes:

- Ensure students know how many dimes and pennies make a dollar
- Put on a number line with money labelled in cents.
- Dimes, nickels, pennies, quarters

4N5.1 Students apply equivalence to the interpretation of fractions

- There are infinitely many equivalent fractions that represent the same number. (limit to money with dimes and pennies initially)
- Exactly one of infinitely many equivalent fractions is in simplest form. (initially limit to money with pennies and dimes)

4N5.2 Students apply equivalence to the interpretation of fractions.

- Decimal numbers that terminate (do not repeat) are fractions with denominators of 10, 100, etc.
- Fractions and decimal numbers that represent the same number are associated with the same point on the number line (use this part understanding as your initial conversation)

How can area characterize space?

4M1.1 Students interpret and express area.

Knowledge	Understanding	Skills & Procedures
Tiling is the process of measuring an area with many copies of a unit, without gaps or overlaps. The unit can be chosen based on the area to be measured. Area can be measured with non-standard units or standard units. The area of a rectangle equals the product of its perpendicular side lengths.	Area is a measurable attribute that describes the amount of two-dimensional space contained within a region. Area may be interpreted as the result of motion of a length. An area remains the same when decomposed or rearranged. Area is measured with equal-sized units that themselves have area and do not need to resemble the region being measured. The area of a rectangle can be perceived as square-shaped units structured in a two-dimensional array.	Model area by dragging a length using hands-on materials or digital applications. Recognize the rearrangement of area in First Nations, Métis, or Inuit design. Compare non-standard units that tile to non-standard units that do not tile. Measure area with non-standard units by tiling. Measure area with standard units by tiling with square centimetres. Visualize and model the area of various rectangles as two-dimensional arrays of square shaped units. Determine the area of a rectangle using multiplication. Solve problems involving area of rectangles.

Notes:

- Initially - Race to 100 or 144, grid colouring, review of math facts, area covered.
- How many ways can we draw 12 as a rectangle?

4M1.1 Students interpret and express area

- Area is a measurable attribute that describes the amount of two- dimensional space contained within a region.
- Area may be interpreted as the result of motion of a length.
- An area remains the same when decomposed or rearranged. (Link to math facts 4N4)
- Area is measured with equal-sized units that themselves have area and do not need to resemble the region being measured.

Build Money Skills and Leverage for other Outcomes

OPEN Ended Questions only

What did we see when we emptied our bowl on the table?

How would you model, exemplify or teach the following using money?

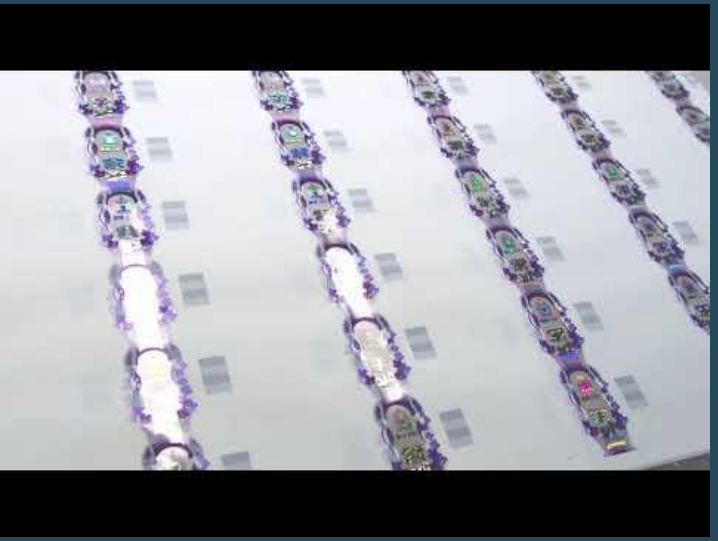
Kindergarten:

- Quantities using objects, words, pictures, numbers
- Counting objects
- Subitize to 5/10
- “like/unlike/more/less/same”/enough/too many/too few
- Compose quantities within 10 in various ways
- “Share” - this is the beginning of fractions
- Describe a shape using words such as flat, curved, straight, or round.
- Sort shapes according to one attribute and describe the sorting rule.
- Measurable attributes can include • length • area • capacity • mass
- “longer • taller • shorter • heavier • lighter • bigger • smaller • big enough • too big • too small”
- Describe the size of an object in relation to another object, using comparative language.
  Describe the size of an object in relation to a purpose or need, using comparative language.
- Identify the pattern core, up to three elements, in a repeating pattern.
- Predict the next elements in a repeating pattern. Create a repeating pattern with a pattern core of up to three elements.

How Money Links to the K-6 Outcomes

Starting Off t Year being Intentional with Money

The Making of a Bank Note



Canada's New Banknotes

e Secrets of the Canadian Dollar

Money - Manipulative or Concept?

Money - Manipulative or Concept?

What is a COIN?

Do you have any coins?

The Story of Our Coins

Hi! I'm the Penny

Pennies can help you learn to count!

Queen Elizabeth II on the back of the Penny.

Did you know they do not make me anymore!

Maple leafs: On the front of the Penny

I am worth 1 ¢

Suggest purchasing this money resource

Who has more?

A

B

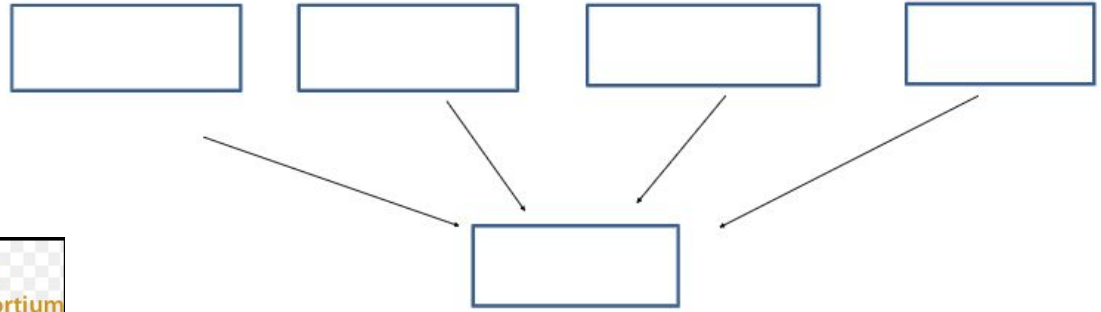
Click here to explain how you know.

- Understanding “Money” and its role in many other concepts.
- Understanding how it connects between grades and end goals.
- “Money is a Leader”
- The 4 C’s - Concept, Content, Clarifier & Context
- A Physical “tool” - should be related to other “tools”
- Culturally Common - Common Context regardless of language
- Note: Canadian Money has colour as part of its identification - try to use stay away from black/white unless there are no other options and then ensure the coins are *realistic!*

Money

Place Value Chart Beginning with Money (Penny, Nickel, Dime, Quarters)

Quarter 	Dime 	Nickel 	Penny 



Place Value Chart Beginning with Money (Loonie, $5, $10, $50, $100)

+ + + +

Place Value Chart Beginning with Money (Loonie, $5, $10, $100, $1000)

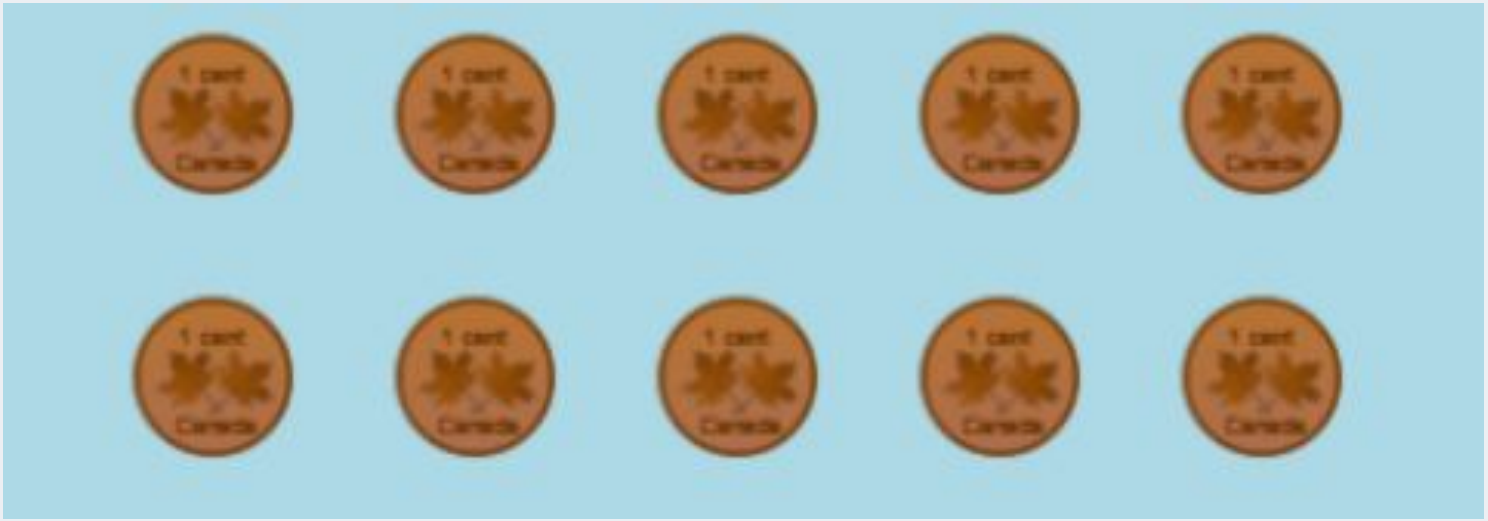
THOUSAND ($1000.00)			

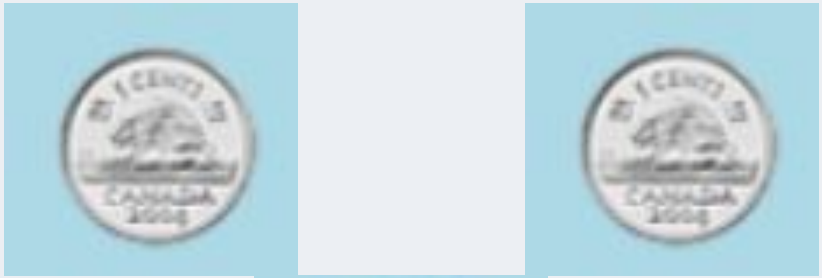
$1000.00 = 100 000¢

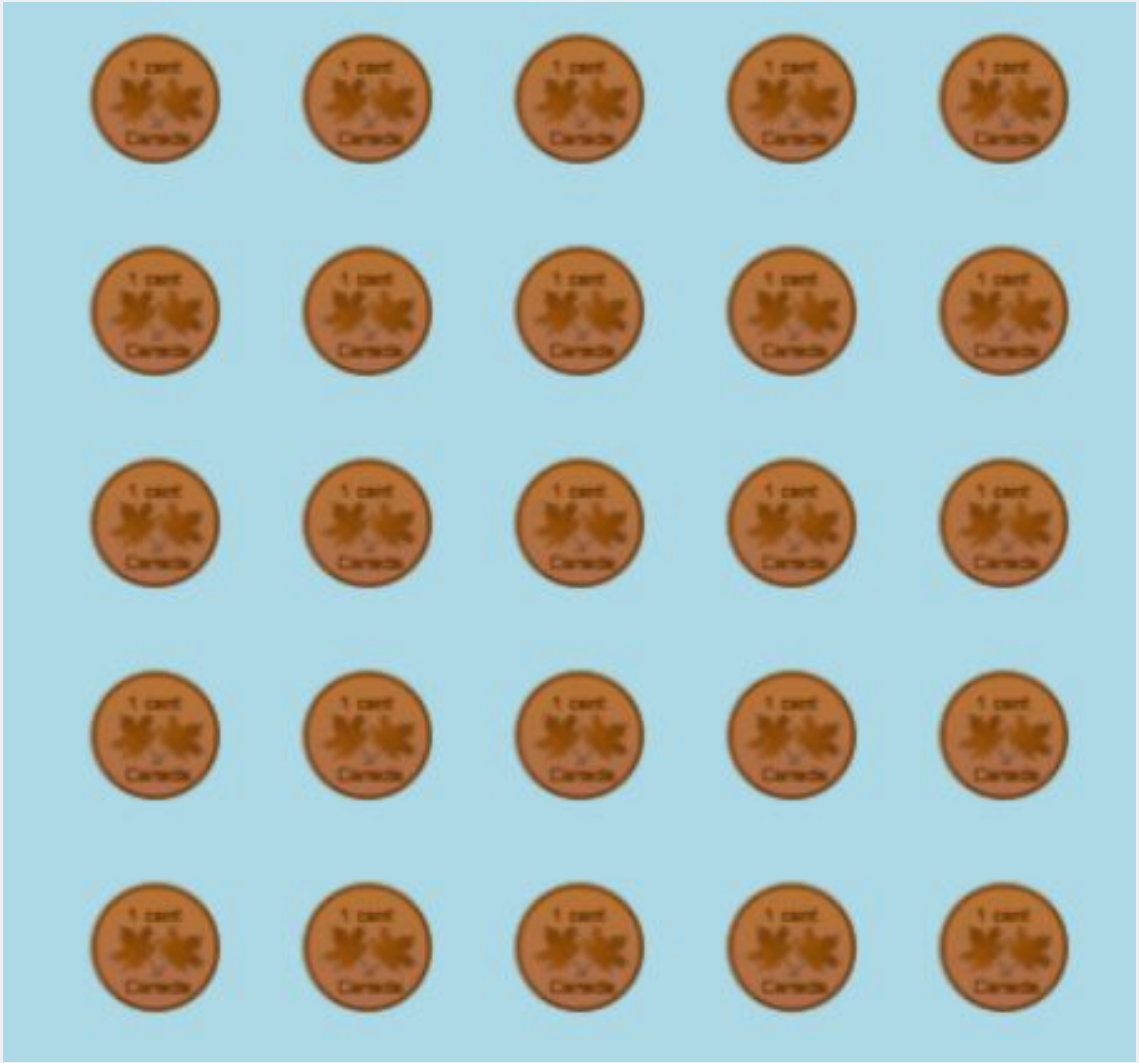
Your Base 10 Mat - precursor to Base 10 Blocks

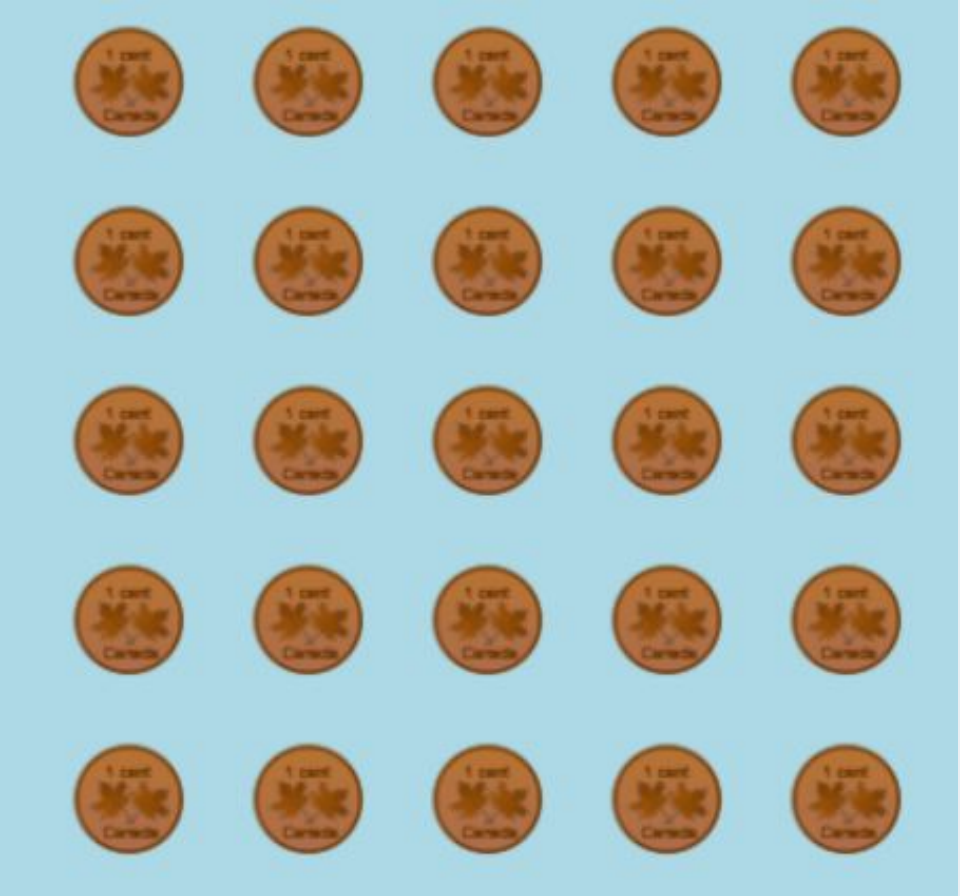
Place Value Chart Beginning with Money (Penny, Dime, Loonie, $10, $100, $1000)

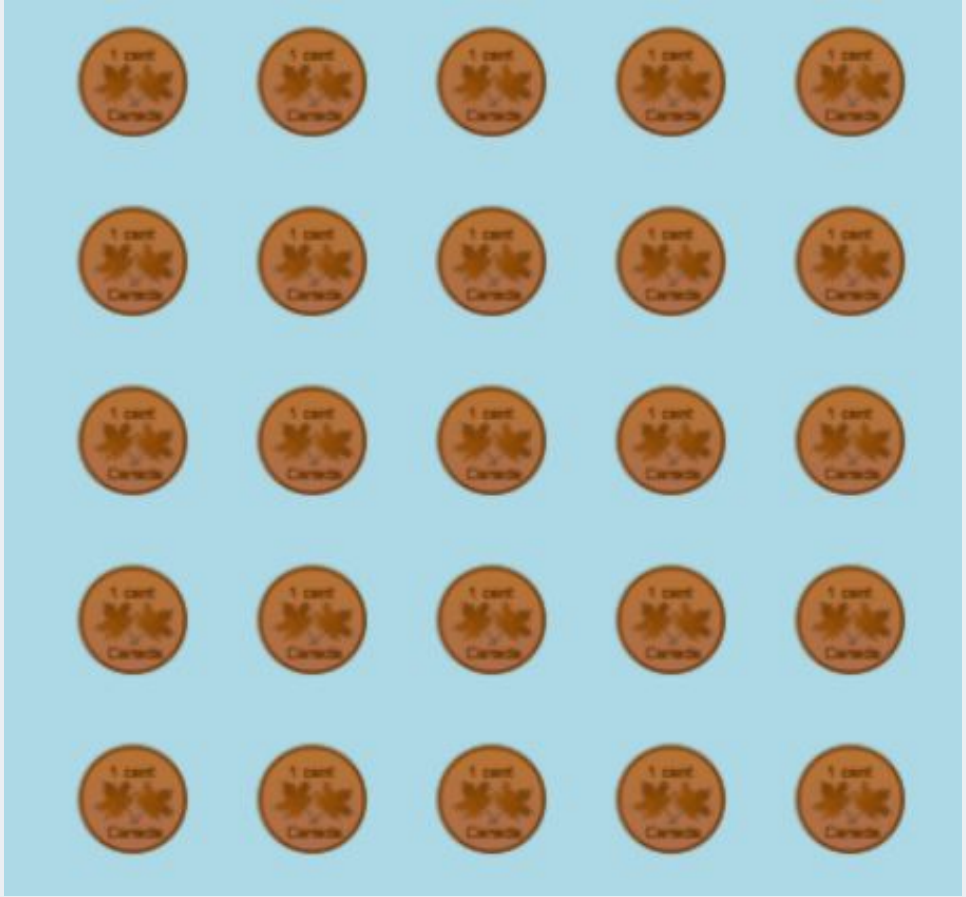
 (not legal tender)					

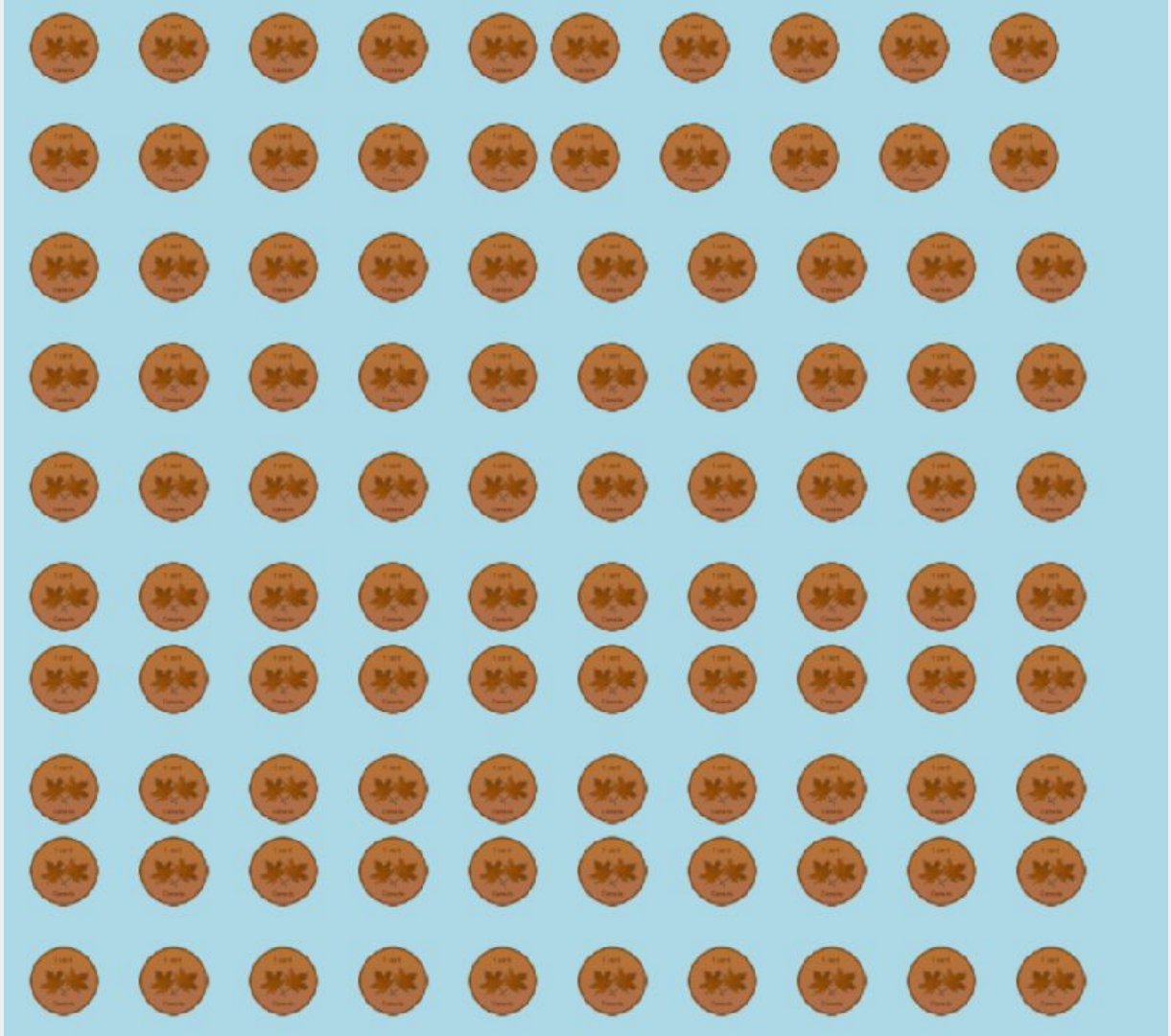

1 cent
Canada

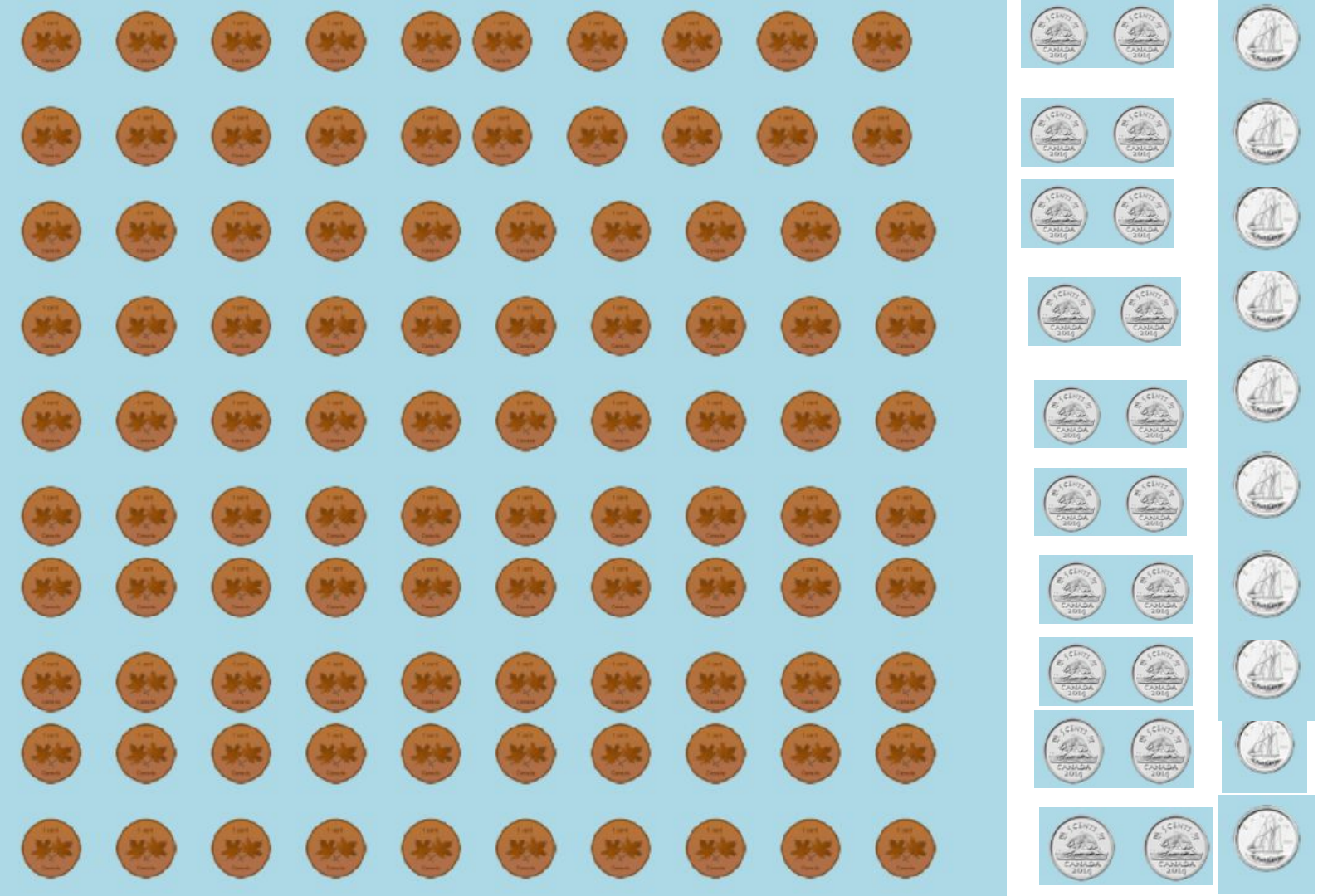

1 CENT
CANADA
2004


1 cent
Canada









Unit Fractions get built from this understanding and activity.

Our Goal is Decimals but not immediately - what will this look like with money?

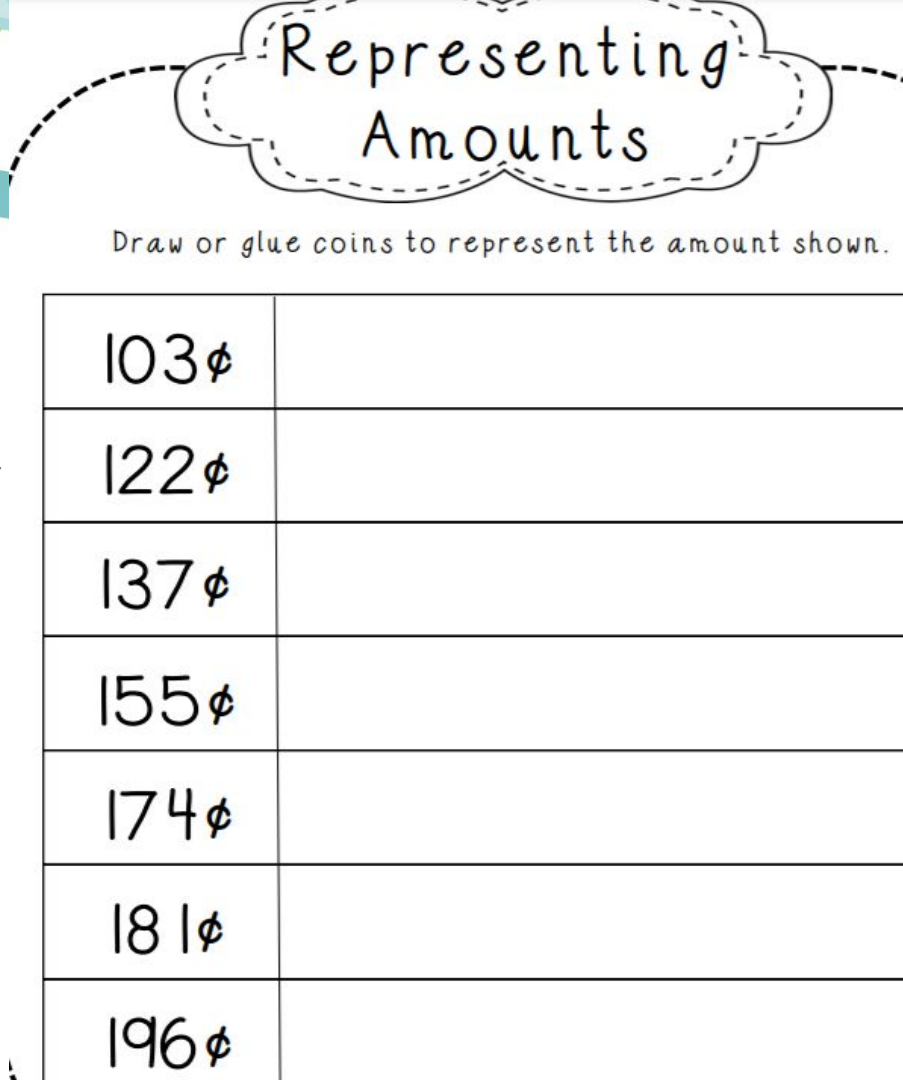
Play “Show Me”

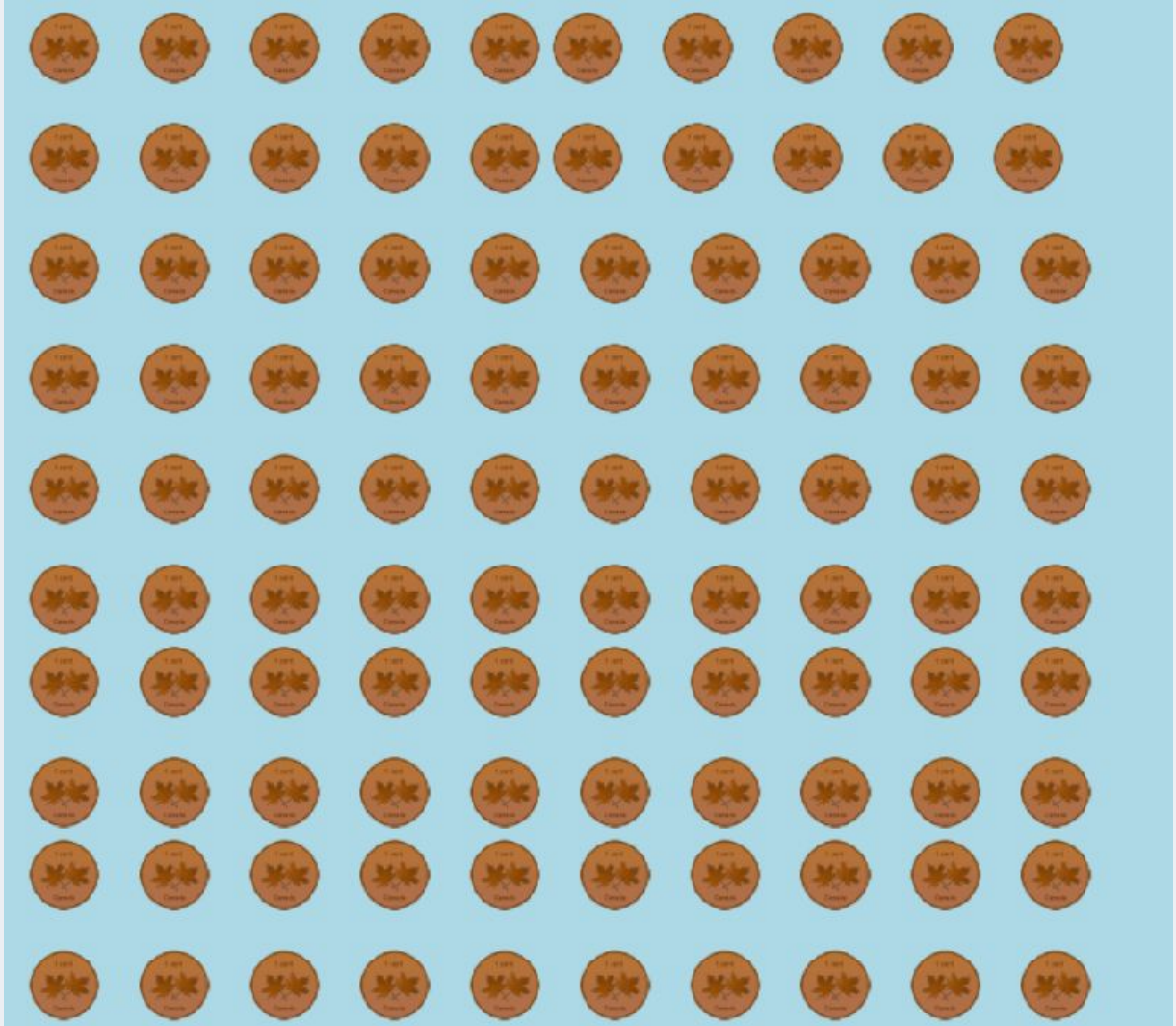
- Show me:
  - 103 cents; a different way; another different way

Being "Efficient"

- Show me 155 cents
- Show me 196 cents

When you go into a store, do see the prices written 196 ¢ ?

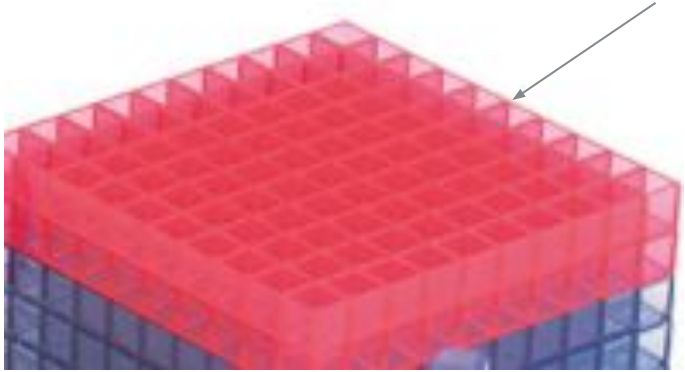




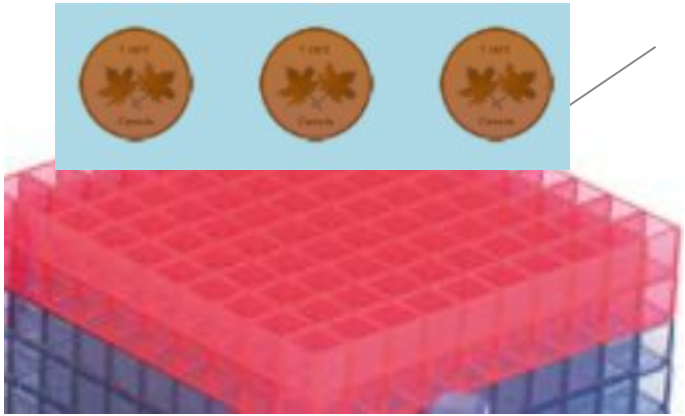
100 pennies =
$1.00

Starting Place Value

Show me 196 cents or $1.96

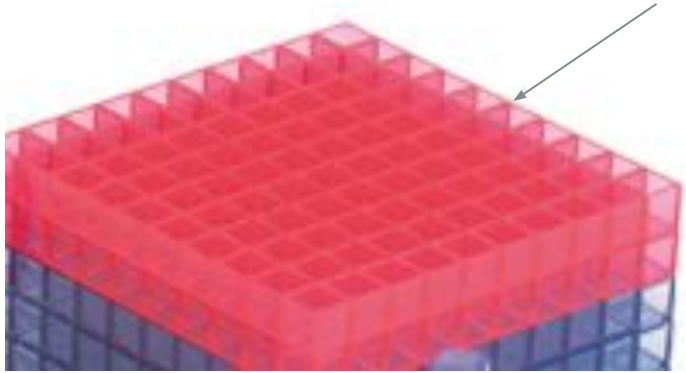


Starting Place Value
Show me 103 cents



Starting Place Value

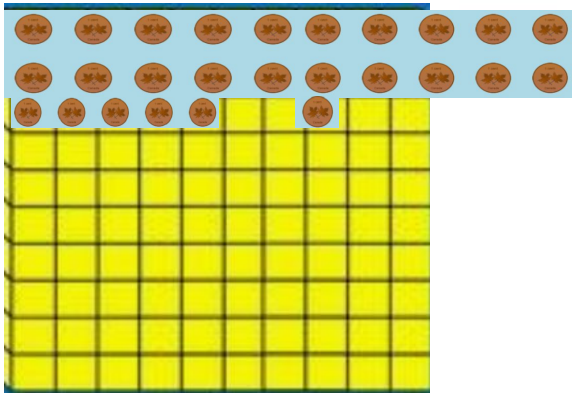
Show me $1.26

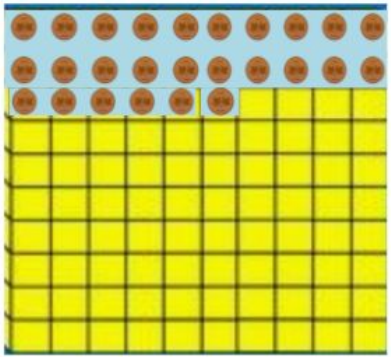


closer to 1 or 2?

$ 1.26

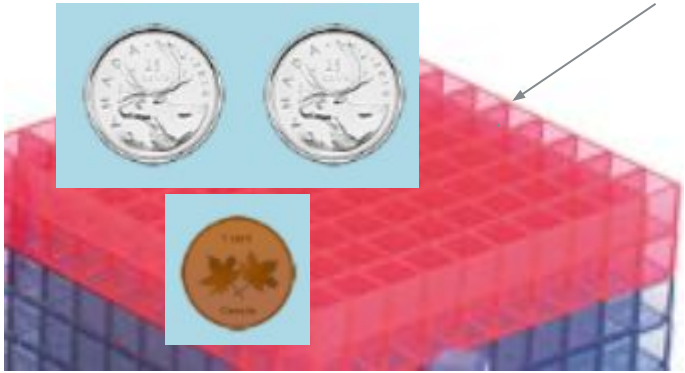
$ 

. 

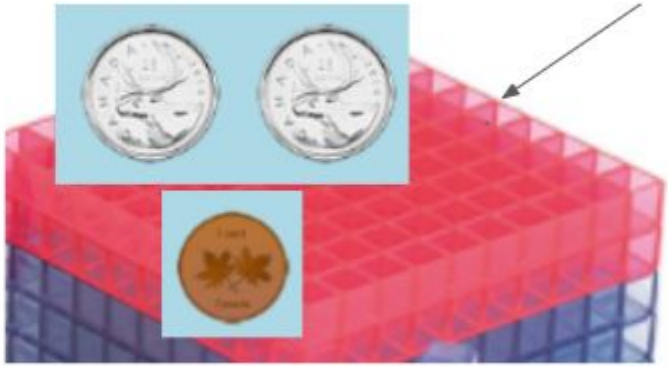
$  . 

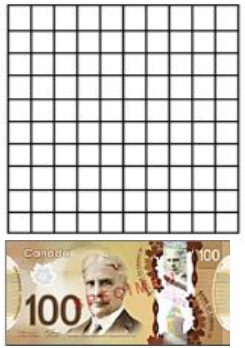
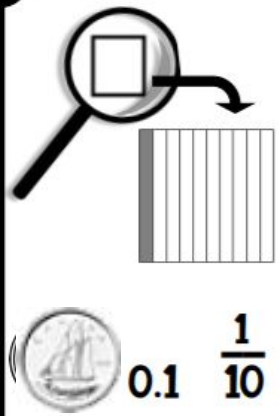
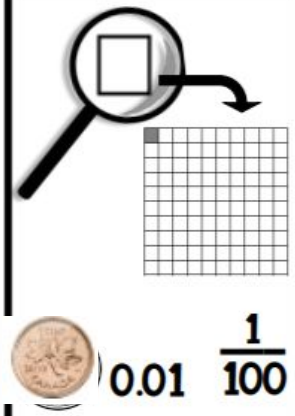
Starting Place Value

Show me $12.51 efficiently



Hundred dollars	Tens dollars	One dollars	Tenths	Hundredths



Hundreds	Tens	Units	Tenths	Hundredths
 100.00	 10.00	 1.00	 0.1 $\frac{1}{10}$	 0.01 $\frac{1}{100}$

Making Money Many Ways

$250.00

Link

Group

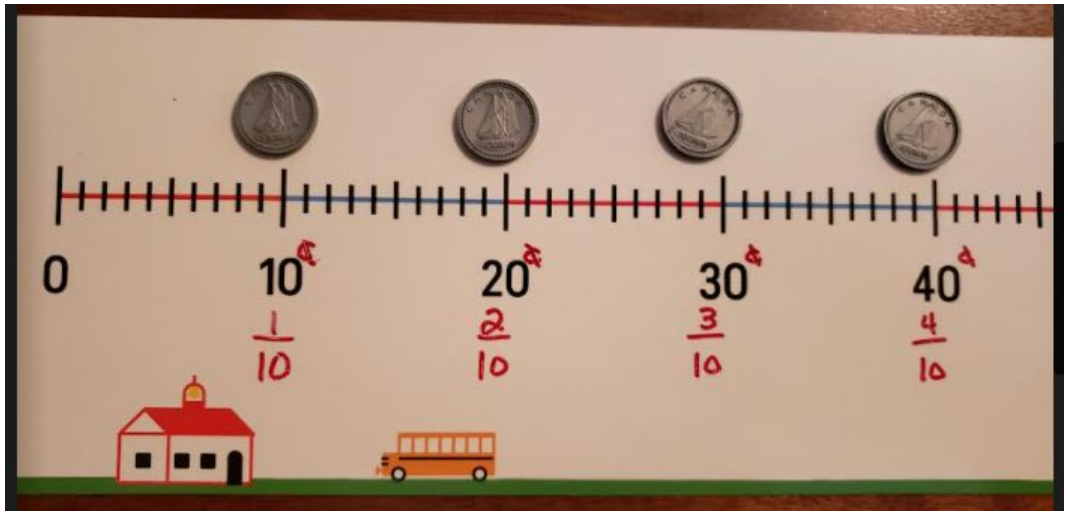
Adapted by Wanda from Theresa Wills / Shared by Wanda Dechant CRC

Assessment

1. Count up the money amounts. Write the total.

Coins	Total
	
	
	

Create the Unit Fractions Visually - no fraction terminology

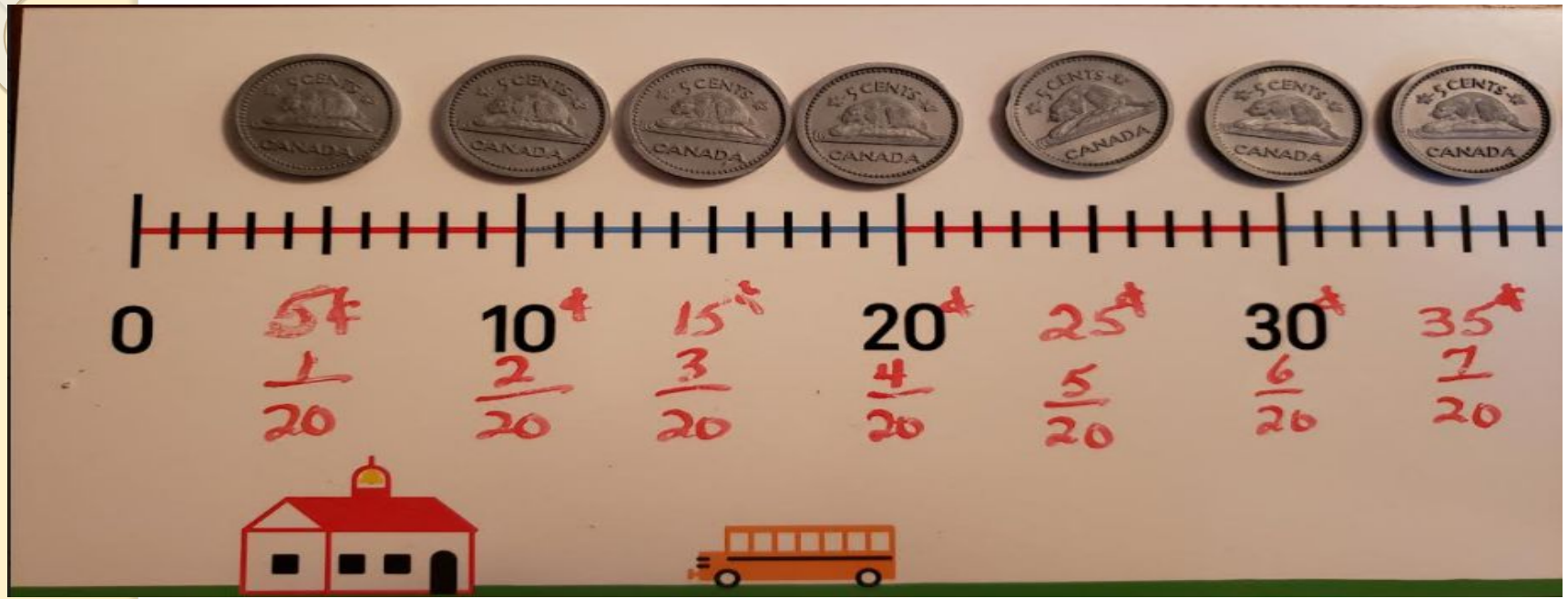


`Counting fractions
“jumps”

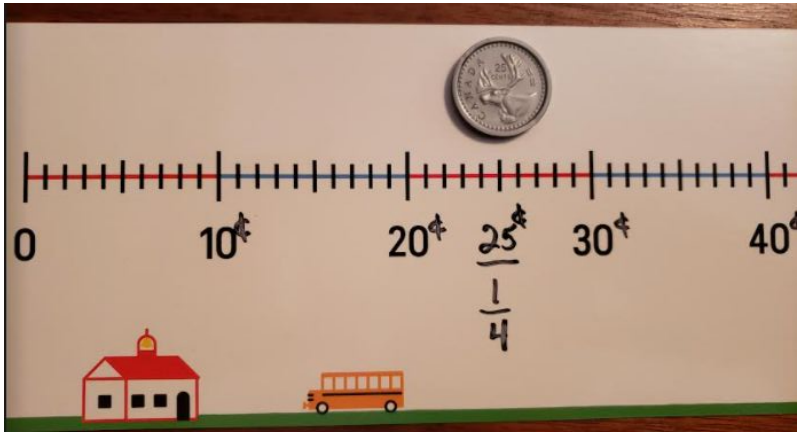

0 10 20 30 40 50 60 70 80 90 100

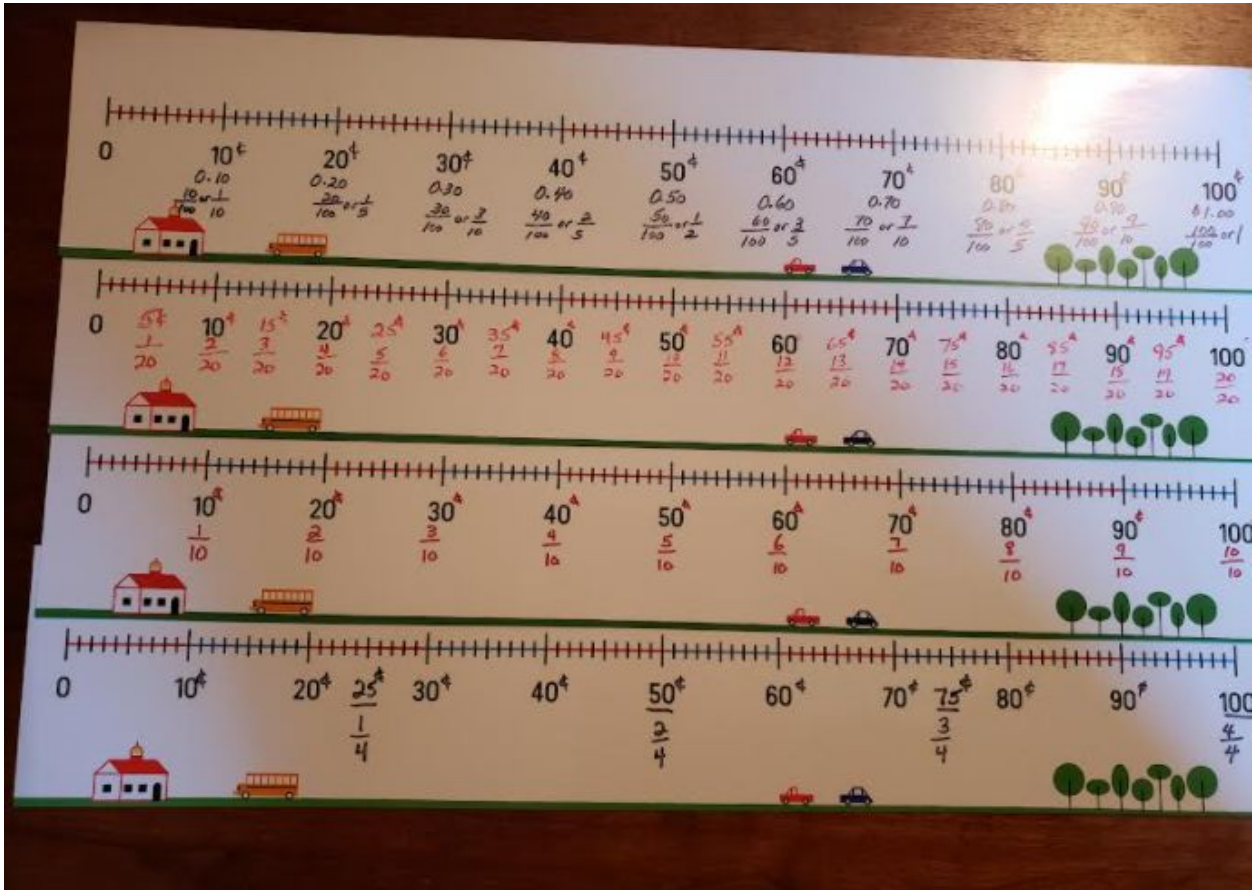

0 10 20 30 40 50 60 70 80 90 100

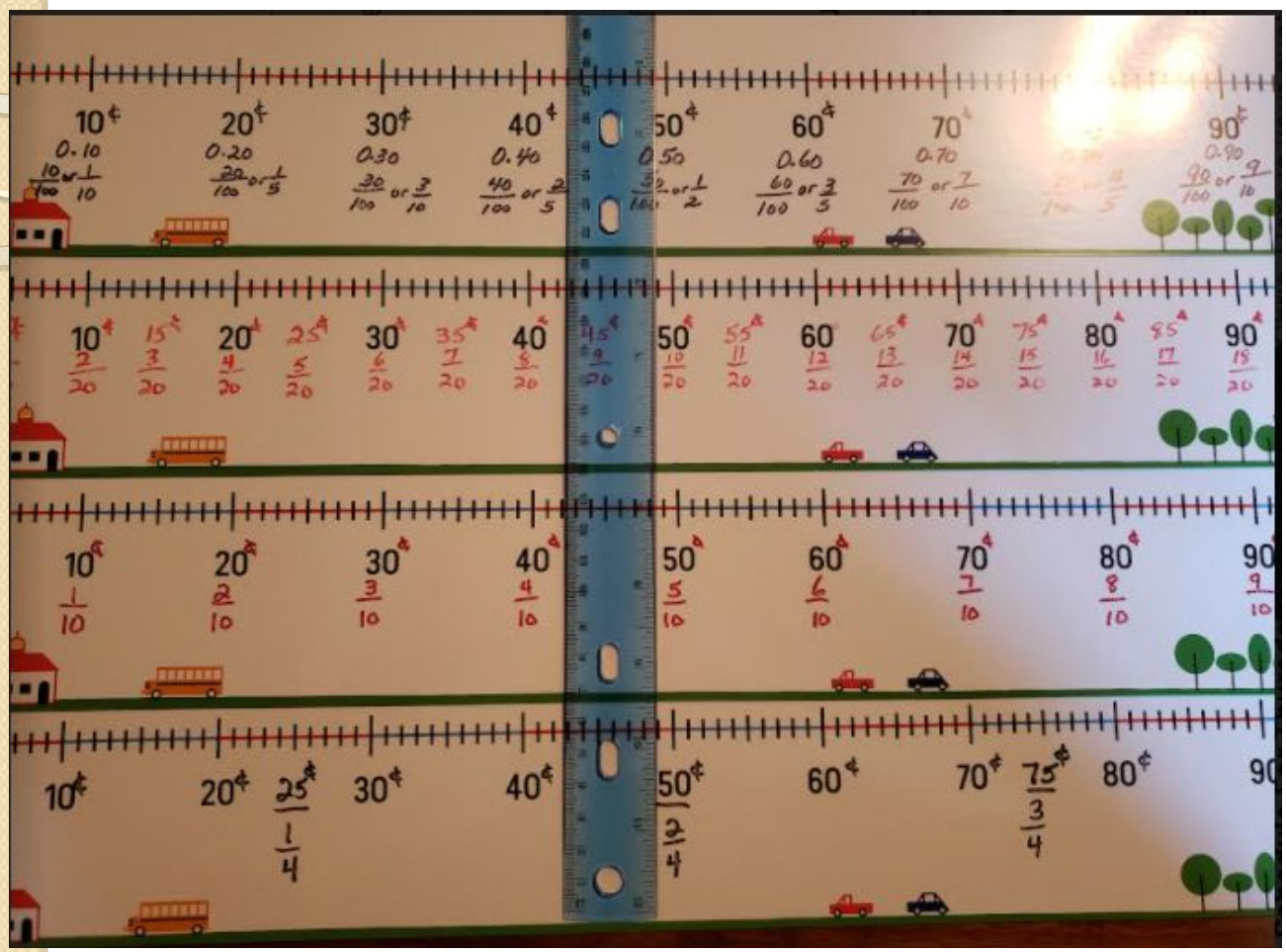

0 10 20 30 40 50 60 70 80 90 100

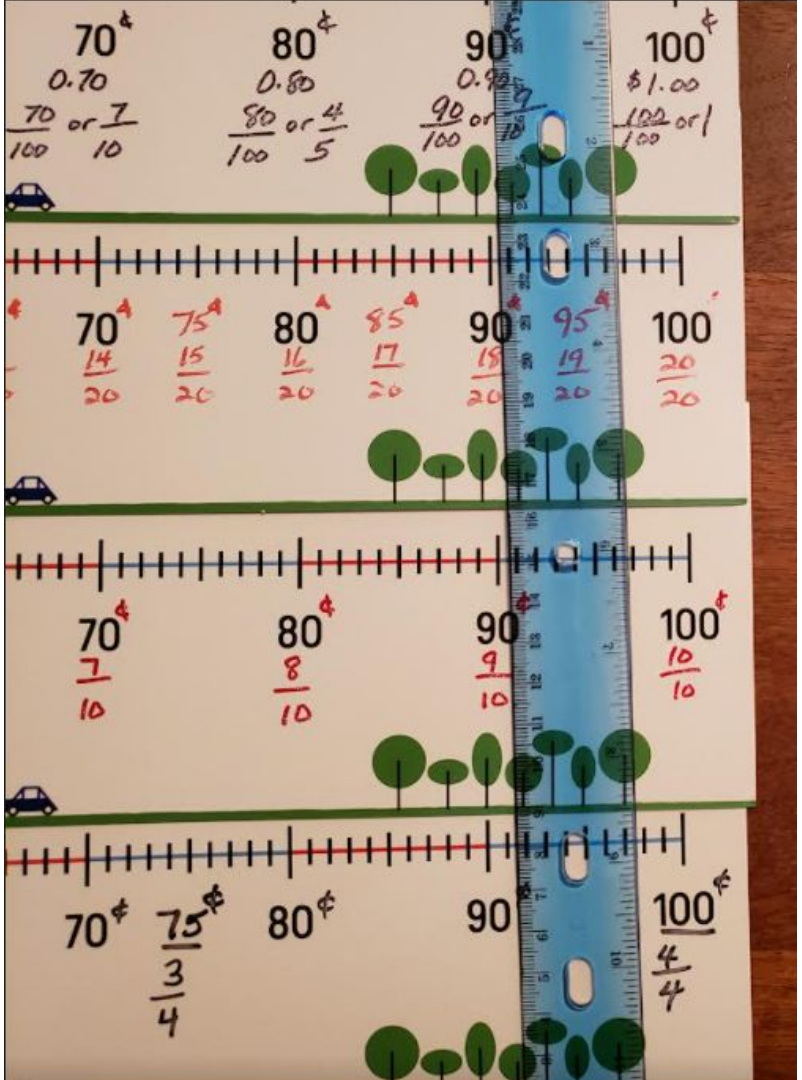

0
5¢
1/20
10¢
2/20
15¢
3/20
20¢
4/20
25¢
5/20
30¢
6/20
35¢
7/20

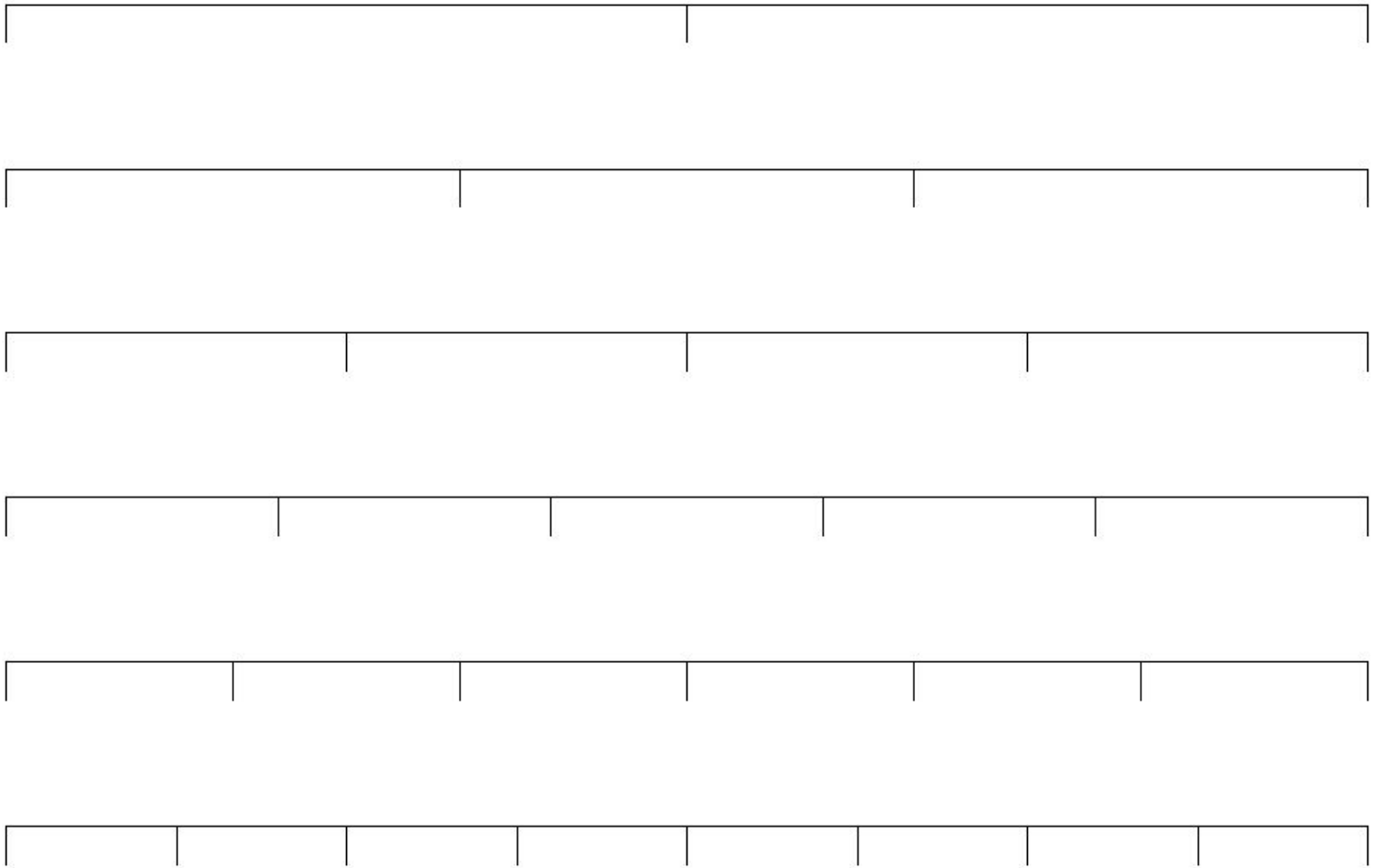

0
10¢
20¢
25¢
1/4
30¢
40¢
50¢
2/4
60¢
70¢
75¢
3/4
80¢
90¢
100¢
4/4


0
10¢
20¢
25¢
1/4
30¢
40¢

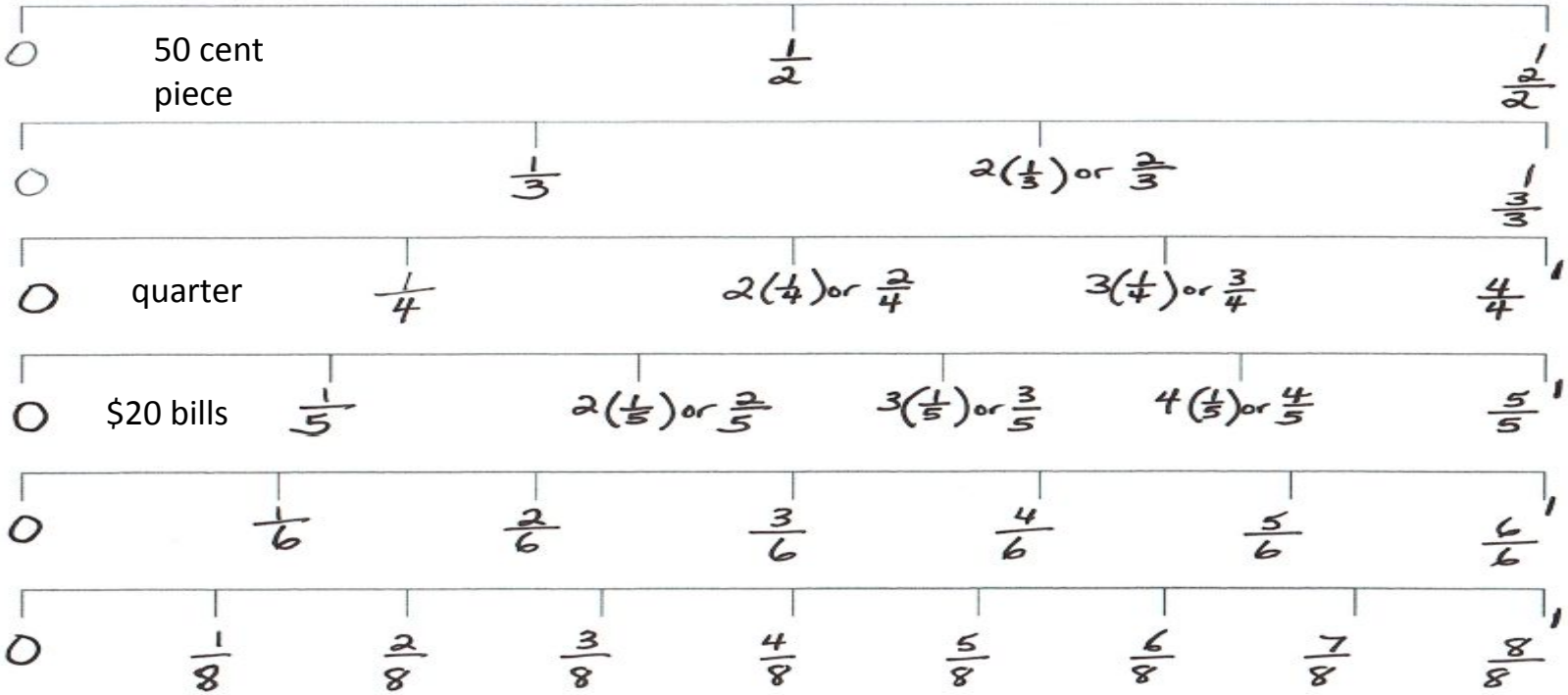

0
10¢
20¢
30¢
40¢
50¢
60¢
70¢
80¢
90¢
100¢
0
10¢
20¢
30¢
40¢
50¢
60¢
70¢
80¢
90¢
100¢
0
10¢
20¢
30¢
40¢
50¢
60¢
70¢
80¢
90¢
100¢
0
10¢
20¢
25¢
30¢
40¢
50¢
60¢
70¢
75¢
80¢
90¢
100¢


10¢ 20¢ 30¢ 40¢ 50¢ 60¢ 70¢ 90¢
0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.90
10¢ 15¢ 20¢ 25¢ 30¢ 35¢ 40¢ 45¢ 50¢ 55¢ 60¢ 65¢ 70¢ 75¢ 80¢ 85¢ 90¢
10¢ 20¢ 30¢ 40¢ 50¢ 60¢ 70¢ 80¢ 90
10¢ 20¢ 25¢ 30¢ 40¢ 50¢ 60¢ 70¢ 75¢ 80¢ 90


70¢
0.70
70/100 or 7/10
80¢
0.80
80/100 or 4/5
90
0.9
90/100 or
100¢
$1.00
100/100 or 1
70¢
14/20
75¢
15/20
80¢
16/20
85¢
17/20
90
95¢
19/20
100
20/20
70¢
7/10
80¢
8/10
90
9/10
100¢
10/10
70¢
75¢
3/4
80¢
90
100¢
4/4

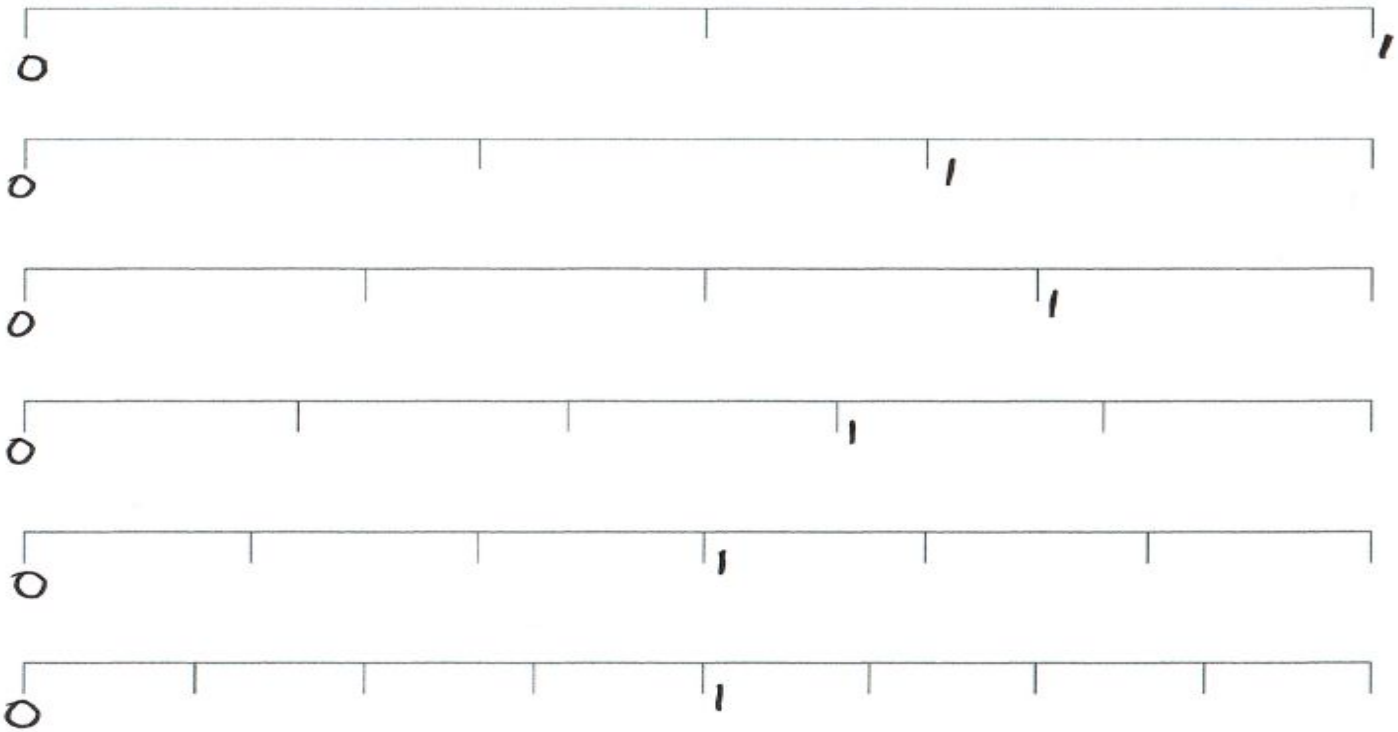


Link

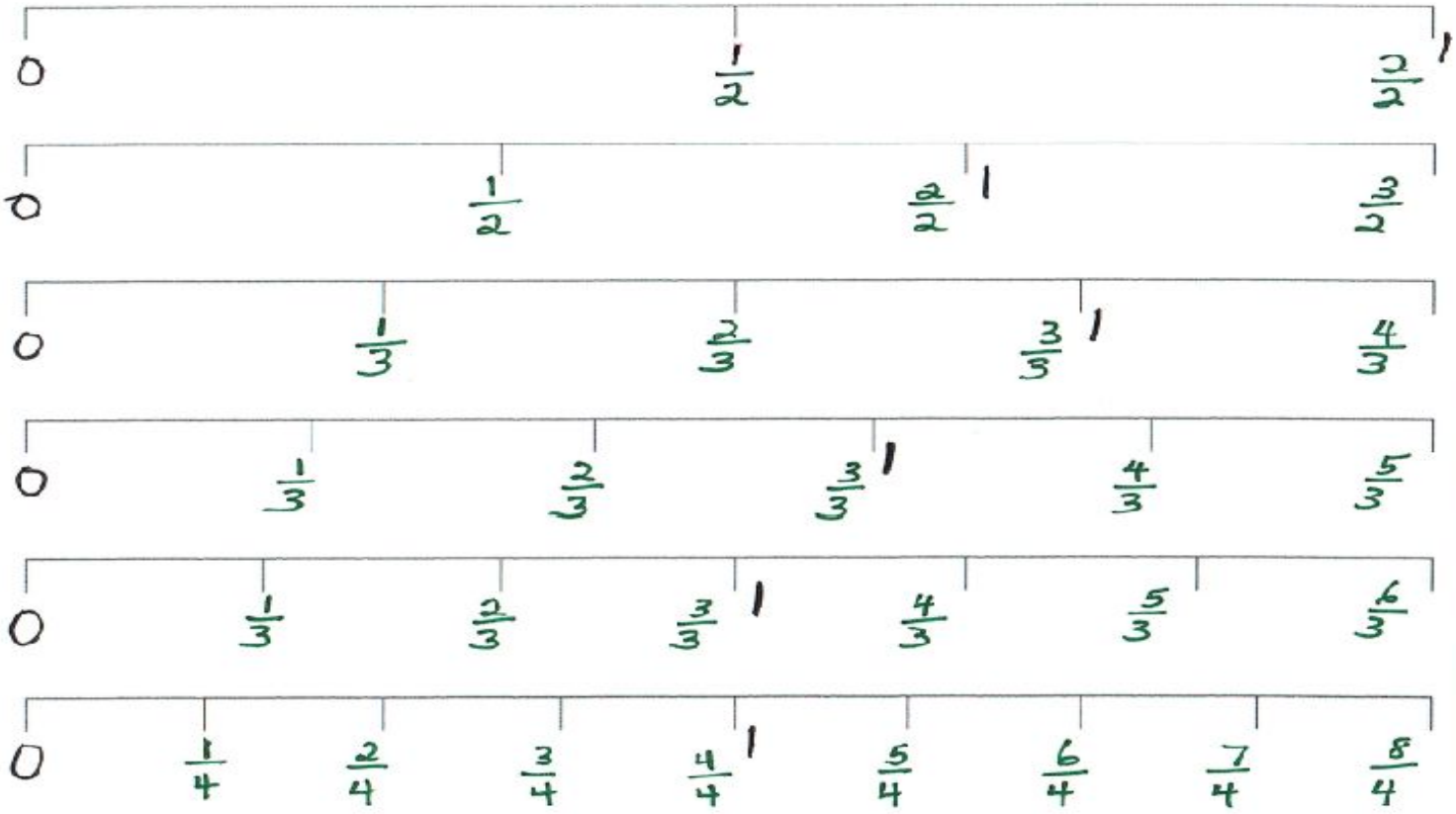


Compare

How can you recognize half?



Surface
Deep
Transfer



How much is $\frac{3}{2}$?

Resources

Subitizing Cards - Adapt for Dominos (6's, 9's 12's)

Largest number
Sum of two cards
Product of two cards
Difference of two cards
Create two digit number - compare
Generate two digit numbers for addition

PBS Videos and Interactives

Sources:

Bruce, C., Chang, D., Flynn, T. *Foundations to Learning and Teaching Fractions: Addition and Subtraction - Literature Review.* Trent University. 2013

Bruce, C et al. Actions to Develop Fractions Understanding as contained in *Paying Attention to Mathematics Education.* http://www.edugains.ca/resourcesMath/CE/LessonsSupports/Fractions/SupportDocs/ActionstoDevelopUnderstandingFractions.pdf

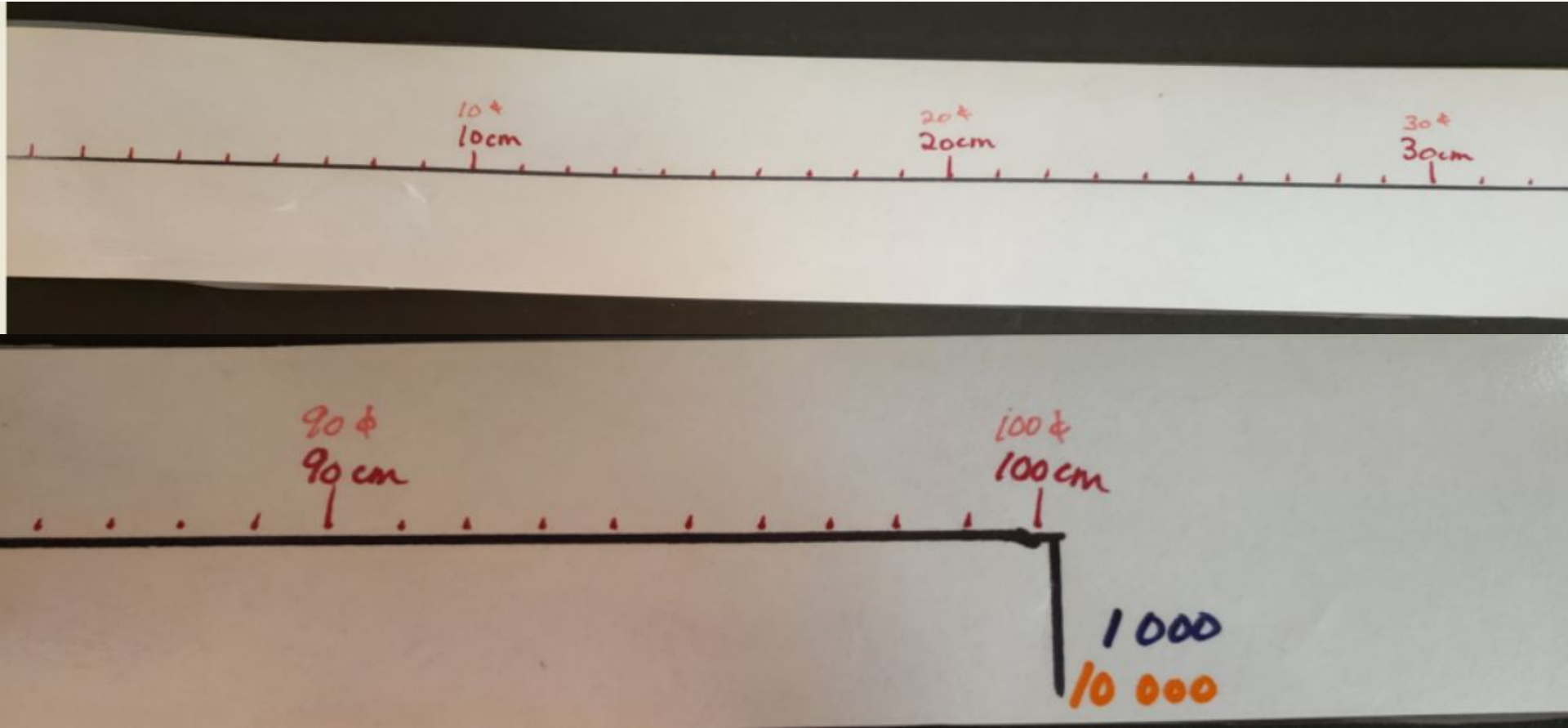
__. Institute of Educational Science. *IES - Developing Effective Fractions Instruction for Kindergarten Through Grade 8.* 2010 https://www.readkong.com/tmp/developing-effective-fractions-instruction-for-kindergarten-7236374.pdf

Greenberg, D. Funny and Fabulous Fraction Stories. Scholastic Education

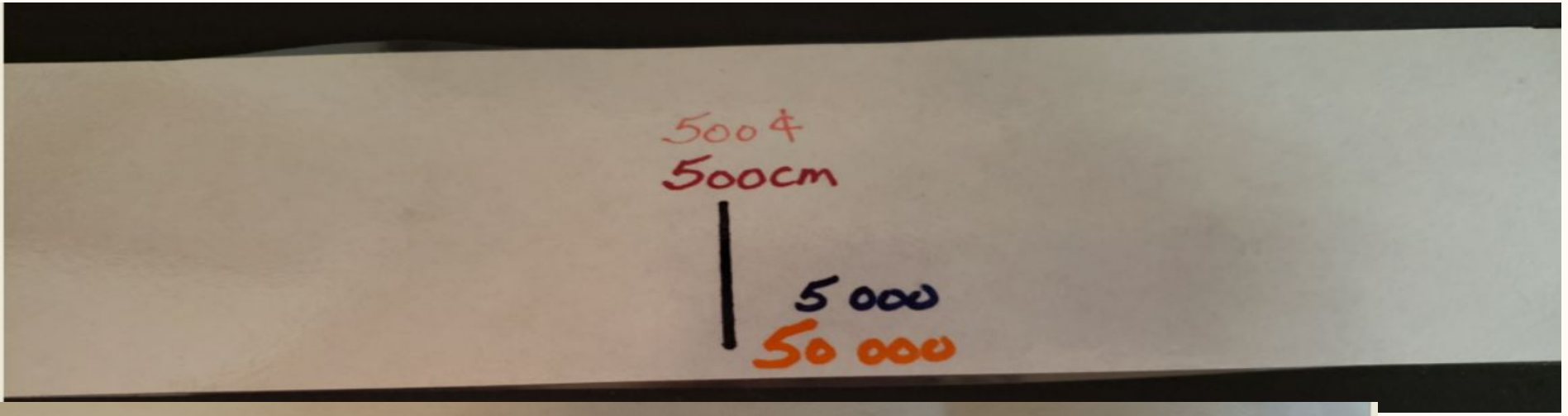
Ways We Use Fractions. Edugains Teacher Support: http://www.edugains.ca/resourcesDP/Resources/PlanningSupports/mathforTeachingWaysWeUseFractions.pdf

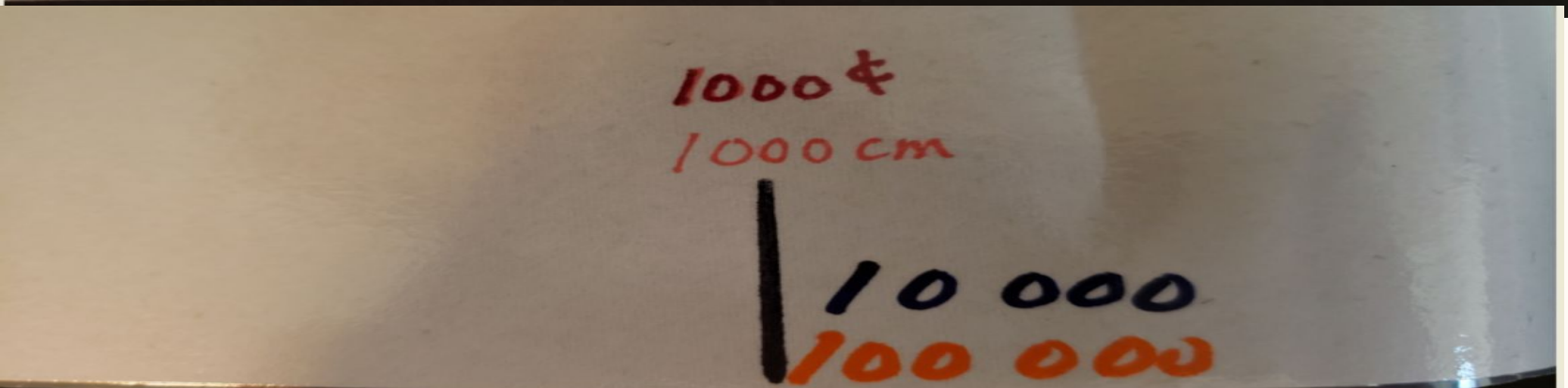
Scholastic Educational Supplies

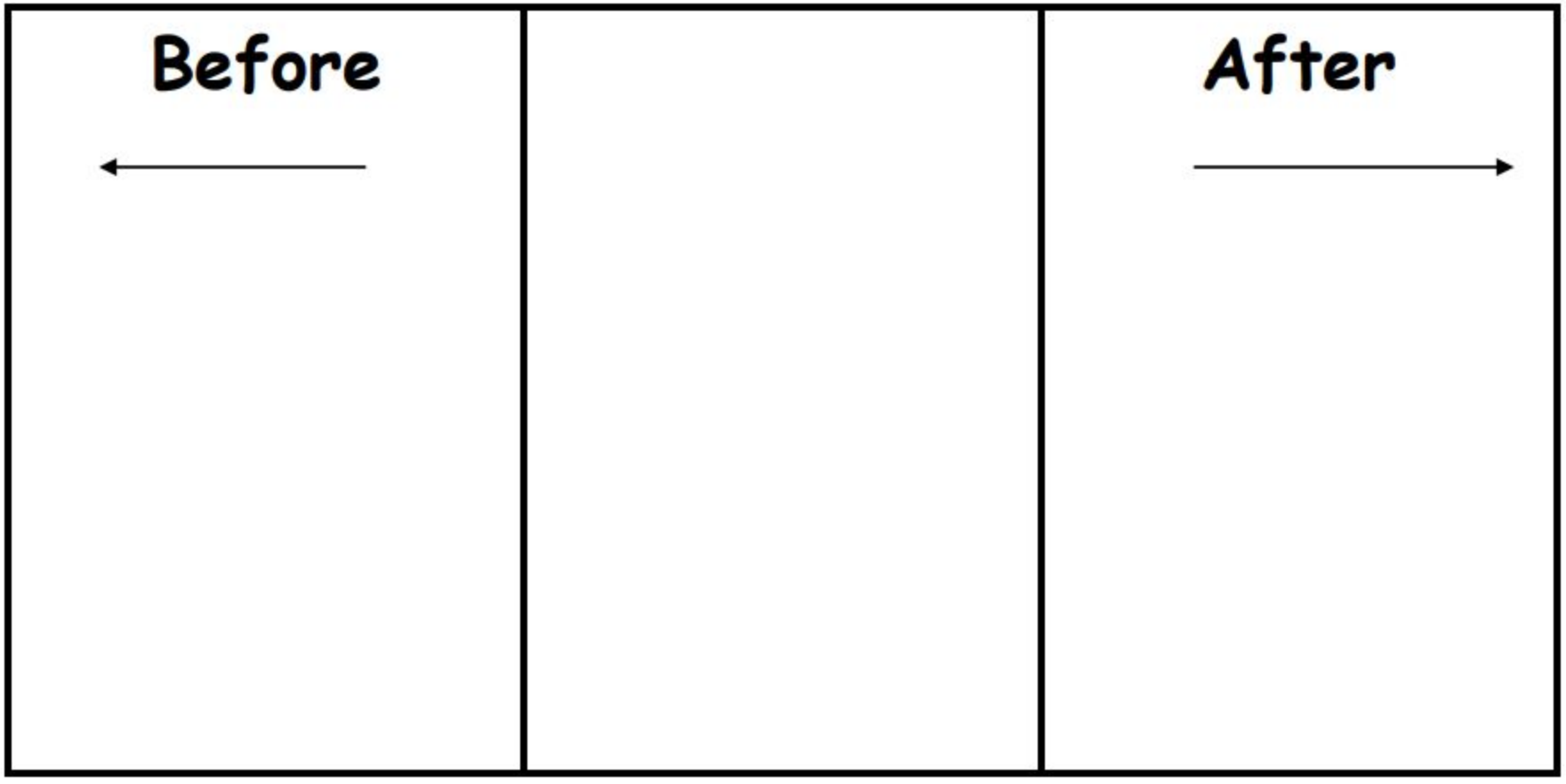
Counting and Visualizing 1000, 10 000, 100 000



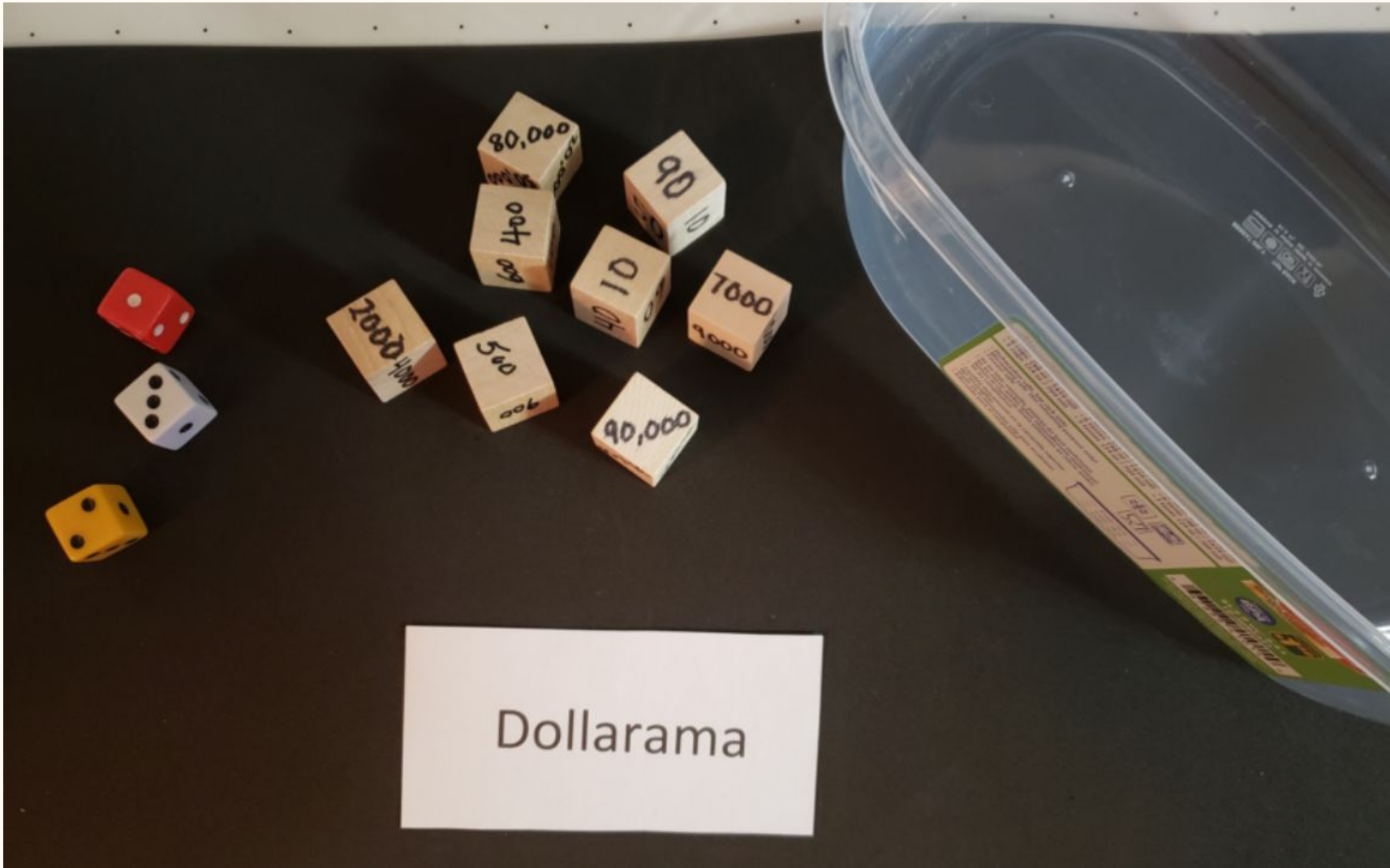
Counting and Visualizing 1000, 10 000, 100 000

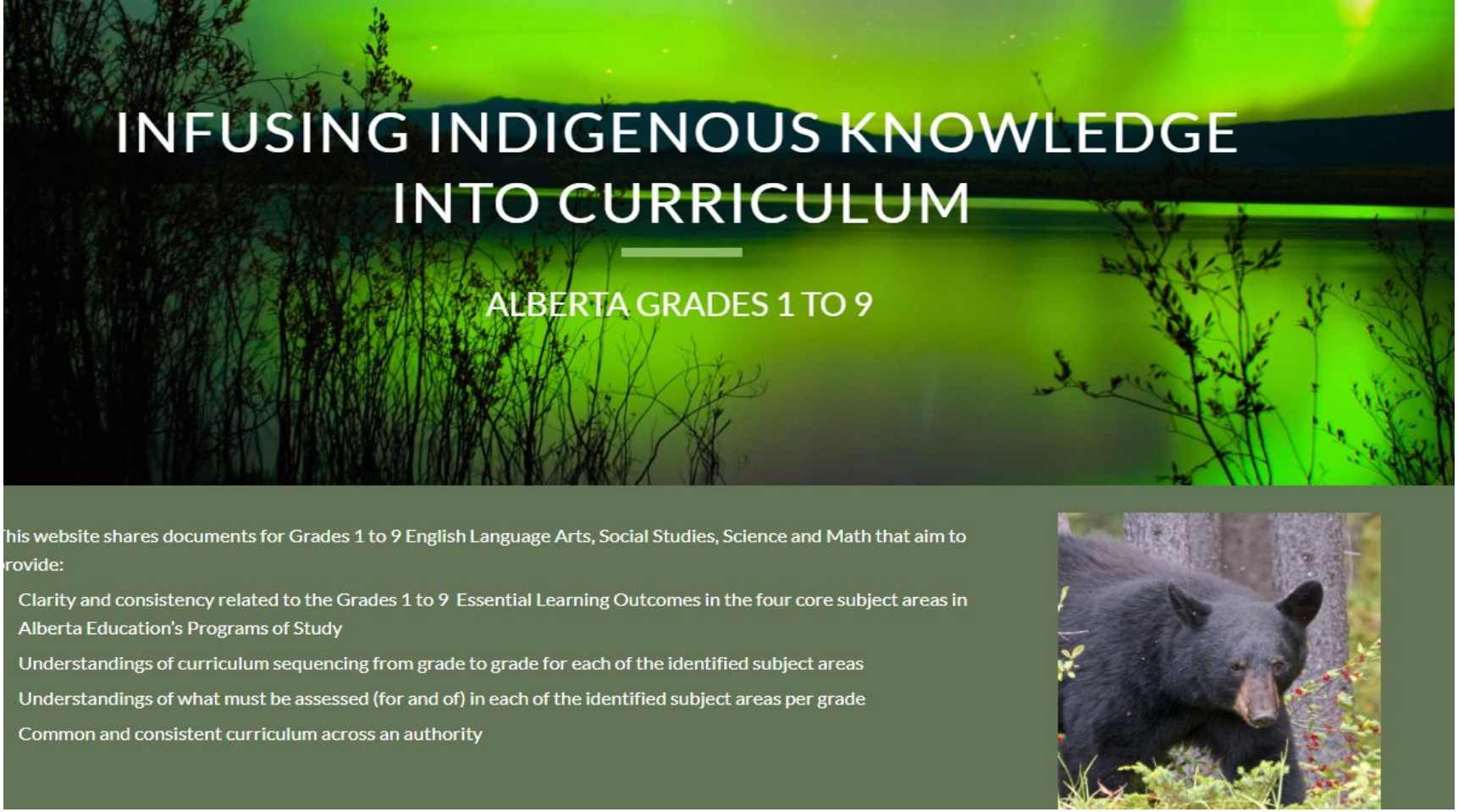




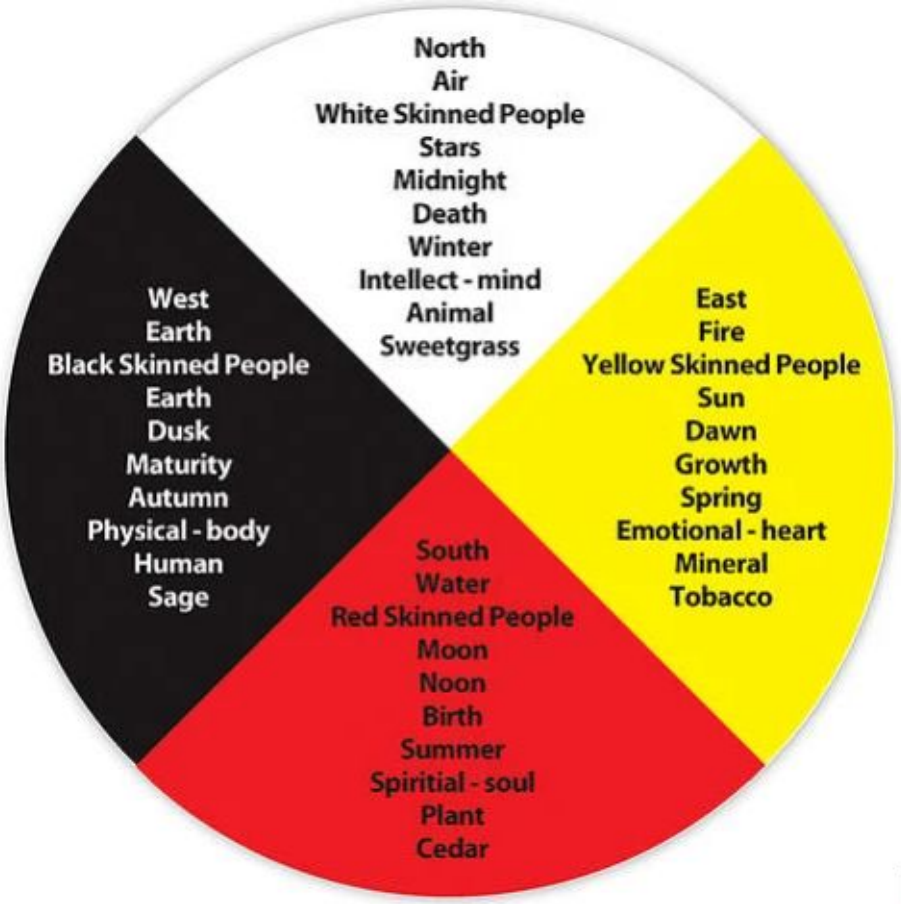

Before
After

Wooden cubes are 1 inch cubes - available at Dollarama





Kee Tas Kee Now Tribal Council Educational Authority, identified ELOs by viewing curriculum through the lens of **land based learning (LBL)**, **Cree ways of knowing and being (Nehiyaw Ways of Knowing)**, and the learning needs of students in their communities.
https://sites.google.com/arpdc.ab.ca/infusingindigenousknowledge



medicine_wheel_RGB

Seasonal Wheels by the Kwakiutl (BC Indigenous)

IKWC (Indigenous Knowledge and Wisdom Centre

Wilfred Buck

Learning to Do (scroll to the bottom and select Grade 2 Math)

Resources

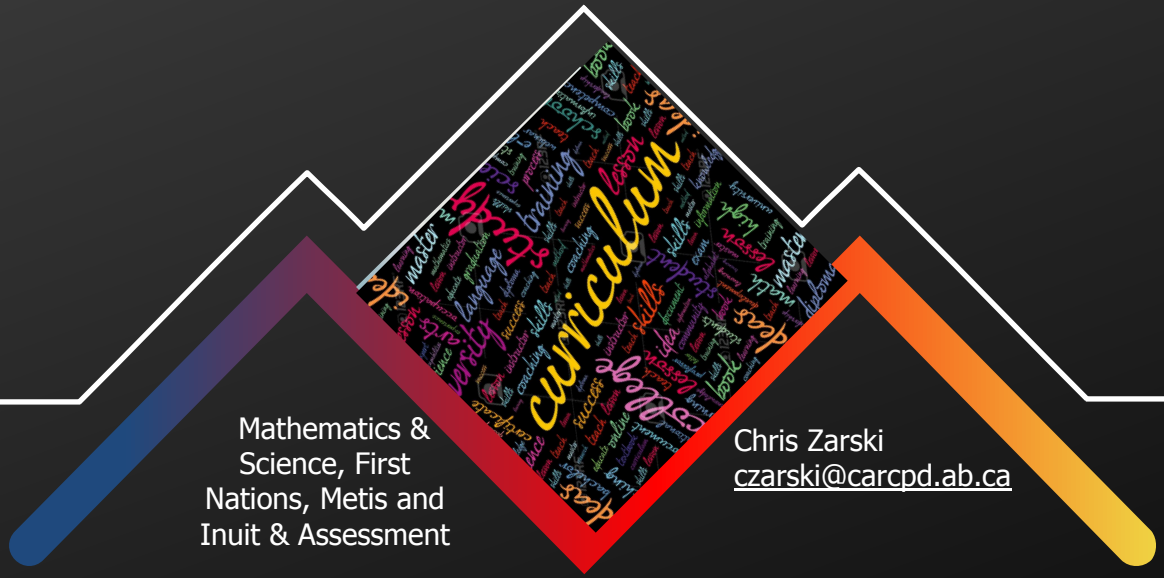
Inside Mathematics
https://www.insidemathematics.org/common-core-resources/4th-grade

Money App

Exploring Bank Notes

Show Me the Money

Alberta Education Planning Guides - all grades and available documents



Mathematics & Science, First Nations, Metis and Inuit & Assessment

Chris Zarski
czarski@carcpd.ab.ca

Thank You!

Please don't hesitate to connect.